Teacher Support Pack

On the Farm: ICT Across the Curriculum

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Contents

Introduction

On the Farm: *ICT Across the Curriculum* focuses on the use of ICT across six different curriculum areas: Literacy, Maths, Science, PSHE, Geography and History.

This Pack

The suggested activities within this Teacher Support Pack (TSP) are aimed at Key Stage 2, Years 3-6, but can be adapted for younger and older students, or to provide more differentiated support for individuals within the class. They have been written to help you get started with Kar2ouche. They provide examples of just some of the ways in which *On the Farm: ICT Across the Curriculum* can be used in the classroom to create a sequence of lessons that embed ICT meaningfully to move learning forward. As you get used to using the software, you will undoubtedly work out activities of your own to match your students' needs and interests more closely.

Kar2ouche *On the Farm: ICT Across the Curriculum* is a toolkit, providing a wide range of backgrounds, characters, props and soundfiles, that enables you and your students to create storyboards, animations and publications for a range of learning purposes. You can also insert your own digital images to extend the range and further personalise the content.

Throughout the activities students are provided with opportunities to communicate ideas through collaboration, discussion and presentation.

Structure

This support pack is designed to help you coordinate your students' use of the Kar2ouche software, as well as deliver meaningful content in a complete lesson format.

Introduction

At the beginning you will find an overview of the benefits of Kar2ouche as a learning tool. You will also see a list of the many different ways you can use Kar2ouche. Students will have many opportunities beyond the core activities to use the software. If you are new to Kar2ouche, you will also find a handy Starter's Guide to help you get to grips with the functionality.

Units

This title is divided into six units, each containing several activities.

- **Unit 1: Descriptions of the Farm** The unit comprises four activities to support ICT and Literacy. Students have the opportunity to listen to accounts of farming life, read descriptive extracts from *The Secret Garden*, plan and write stories based on farming images and review each other's work.
- **Unit 2: A Day in the Life** This unit comprises three activities to support ICT and Maths. Students look at a farmer's typical day and carry out calculations involving time, measurement and production.
- **Unit 3: What's Right?** The unit comprises two activities that support ICT and PSHE/Citizenship. In the first activity students consider the needs and rights of animals, while the second activity looks at issues of animal welfare associated with battery versus free-range farming.
- **Unit 4: Life Processes on the Farm** The unit comprises five activities to support ICT and Science. Students investigate the similarities and differences between organisms, how plants provide energy, the diversity of food types that come from farms, the habitats farms provide for different plant and animal life, as well as different food chains and webs.

- **Unit 5: Land Use** The unit comprises three activities to support ICT and Geography. Students compare the land use of farms, consider the difference between the terms 'primary', 'secondary' and 'tertiary' in the context of farming, as well as investigate the concept of a 'global footprint' by looking at the way food ends up on supermarket shelves.
- **Unit 6: Farm Technology** This single activity combines learning objectives for ICT and History. It looks at the important development of the tractor in the 1930s and asks students to research other technological developments that make a farmer's life easier and safer, increase productivity and/or save money.

Unit Structure

Each unit begins with: an overview of the content; the recommended Key Stage/Year; a list of activities; suggested assessment opportunities; a summary of outcomes and both the ICT and subject curriculum references.

Activity Introduction

In each activity you will find an overview, notes on group organisation, suggested timings and resources needed for each lesson to help you plan ahead. You will also find strategies for incorporating guided learning, co-operative learning and independent practice into your lessons. The objectives and key words sections help you see at a glance which topics are emphasised in a lesson and what students can be expected to learn.

Teacher Notes

The framework for each activity comprises: Introduction, Development, Plenary, Extension/Homework. The Introduction provides a method for leading students into the topic. The Development section provides instructions for the core lesson. The Plenary section helps students synthesise what they have learned, sometimes by summarising their thoughts and other times by applying what they have learned in a new way. The Extension and Homework activities provide opportunities for extra work, as well as advanced learning on a topic.

Student Notes

For your reference, the Student Notes replicate what can be found in the Activities section of the software. Students are given a list of their objectives and the outcomes they are expected to achieve. These are followed by a 'student-friendly' version of the lesson outline provided in the Teacher Notes.

Activity Sheets

Most lessons include one or more activity sheets. These sheets are designed as masters to be photocopied for student use in the classroom. Often, these sheets can be used in conjunction with the software. Sometimes the sheets can be used in lieu of the software if students do not have ready access to a computer.

What is Kar2ouche?

Kar2ouche is a multimedia authoring tool, and is used in a series of content titles focused on enhancing learning in a number of different subjects. In each instance the application's functions and interface are the same; it is just the backgrounds, characters, props and texts that change. Consequently, once children have learned to use Kar2ouche they are able to use it across a range of subjects.

Enhancing Learning

Not only does Kar2ouche help students develop the skills relevant to particular subject areas, it also facilitates the development of more generic thinking skills. Thus students are encouraged to know *how* and *why* as well as *what*.

Information-processing skills	Using Kar2ouche students can be encouraged to: • read for meaning • identify key images, text and ideas • sort the relevant from the irrelevant and extract what is essential • organise and where necessary prioritise ideas • sequence events.
Reasoning skills	Using Kar2ouche students can be encouraged to: • justify decisions using evidence • make informed choices • work out subtexts • consider alternative perspectives, interpretations, ambiguity and allusion • extract meaning beyond the literal.
Enquiry skills	Using Kar2ouche students can be encouraged to: • work collaboratively to question text • observe events and predict subsequent action • consider consequences • explore how ideas, values and emotions are portrayed • analyse the relationship between characters.

Creative thinking skills	Using Kar2ouche students can be encouraged to: • offer individual interpretations of texts or situations • create original multimedia texts • add imagined scenes and events • respond imaginatively to texts and situations.
Evaluation skills	Using Kar2ouche students can be encouraged to: • consider how meanings are changed when texts are adapted to different media • review, modify and evaluate work produced • reflect critically on written text, their own work and the work of peers • compare and contrast their work with the work of others.
Communication skills	Using Kar2ouche students can be encouraged to: • engage in collaborative working and dialogue • listen, understand and respond critically to others • articulate ideas in groups of different sizes • use visual aids and images to enhance communication.

Making Your Own Activities Using Kar2ouche

You and your students can use Kar2ouche in a range of contexts and ways. You can devise your own activities in Kar2ouche to introduce texts and ideas to students using one PC and a data projector; alternatively, you might want to create partially made storyboards for individuals or pairs to use on a network. When a computer network is not readily available, you might also use the software to create your own worksheets and handouts for students to use in the classroom.

Thus, you can use Kar2ouche to create:

- storyboards
- animations
- publications.

Storyboards

These are particularly useful in encouraging students to show their understanding and ability to extract key information. By producing storyboards, students often show their ability to summarise and synthesise key information. They can be asked to create:

- a summary of a particular event or piece of text in a specified number of frames
- witness reconstructions – step by step – as if for the police
- a summary with speech bubbles or captions containing important text
- a storyboard with their own commentary or summary in their own words
- alternative beginnings
- alternative endings
- before and/or after shots
- additional episodes
- outlines of structure
- presentations for class
- illustrations of alternative points of view/debate
- imagined meetings between characters
- photographs/freeze frames for a particular moment.

In all of these, students can add sound, their own digital images, special effects and recordings of their own voices.

If time is limited, you can partially complete storyboards that students finish in the lesson.

Partially completed storyboards may comprise, for example:

- the first and last frames – students make the frames for the central section
- storyboards that contain blank thought bubbles, blank speech bubbles and/or blank text boxes
- storyboards with questions in text boxes or caption windows
- storyboards with text in the caption window – students create the pictures
- storyboards with odd frames missing
- sequencing activities
- a quiz – 'who says what?', 'what happens next?' etc.

Alternatively, students can create their own incomplete storyboards for others to complete. This could be a sort of consequences game – 'what happens next?'

Animations

Students who have access to Kar2ouche out of class time can enjoy creating animations. As with storyboards, animations enable students to demonstrate their understanding and ability to extract key information. Most of the activities listed below can also be created as still storyboards. Students may be told that they have been commissioned to create a:

- news programme
- documentary
- TV chat show
- TV interview
- film trailer
- scene of a film or credits (representing a particular genre)
- TV advertisement
- musical score
- fashion show.

Publications

As a plenary, students can present their storyboards to the class either using a data projector or on screen. Alternatively, they can use the print facility to create publications in Kar2ouche or copy into a word-processing/desktop publishing program. Within Kar2ouche you can produce a template for students who need the help of a scaffold.

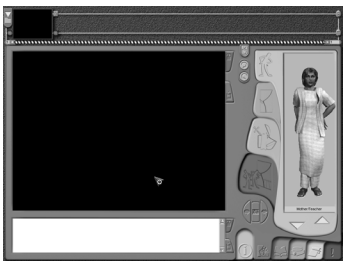
The sorts of publications could include:

- newspaper front pages – using Kar2ouche to compose the pictures (students may choose to create broadsheets and tabloids to compare the differences)
- storybooks – picture above, story below (concentrating on structure/settings etc)
- cartoon strips (or film strips)
- graphic novels
- estate agents' details
- diary entries (with photos/pictures)
- letters (with pictures)
- photo albums
- magazine spreads
- advertising posters
- 'wanted' posters
- guides
- catalogues
- book and magazine covers.

In all of these activities, students may be asked to consider audience and purpose. You can stipulate this audience. As you get used to the software, you'll find the possibilities almost endless.

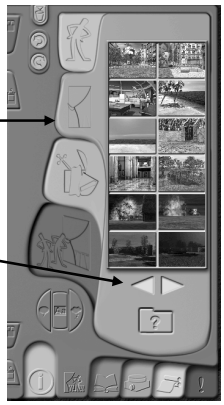
If You Haven't Used Kar2ouche Before – A Starter

If students have not used Kar2ouche before, QuickStart and User Guides are available on Disc 2 within your CD pack, on the hard drive for schools with Kar2ouche *Unlimited* service or can be downloaded via our website **http://www.immersiveeducation.co.uk/support/kar2ouche/.** A good way of showing them the main functions is to demonstrate how to create a title frame. This introduces selecting backgrounds, adding and posing characters, introducing text bubbles, as well as adding text and sound. Students can pick up other skills as they go.

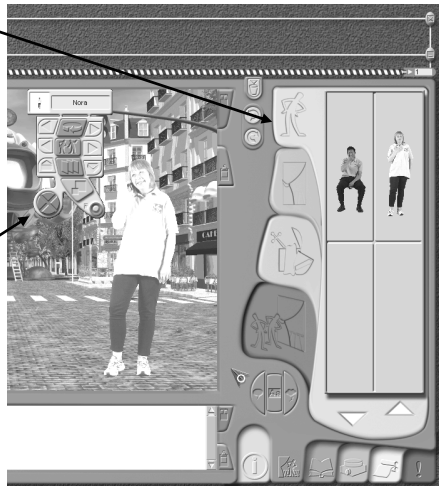


To create a title frame

1. Ask students to open Kar2ouche – the first screen they see is the composition screen.
2. Next ask them to select a background by clicking on the blue background tag. They should click again to see six backgrounds and yet again to see twelve. (Do not click again, otherwise they return to a single view.) They can scroll through the backgrounds using the green arrows at the bottom. Once they have browsed the backgrounds they should select one they like by left clicking on it. It will appear in the composition window.

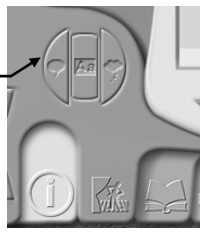


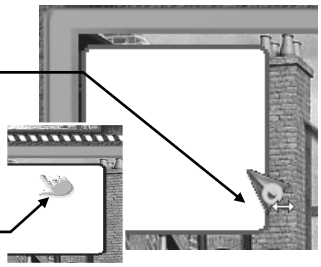
3. Having selected a background, students should choose a character to add to the frame. They do this by clicking on the green character tab (click once more to see four characters, click again to see sixteen) and scrolling through using the green arrows at the bottom. They select the character by left clicking (holding down) and dragging it into the frame. Now for the fun. This character can be resized, posed and rotated by right clicking on it in the frame. This brings up the manipulator tool.



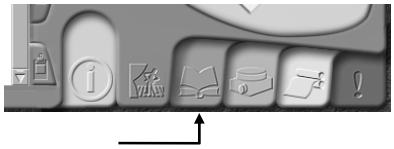
- To rotate the character students click on the left and right facing arrowheads at either side of the top icon.
- To repose the character they click on the arrow heads either side of the central characters icon.
- To resize the character students should left click on the blue squares at the bottom of the manipulator tool, then drag the mouse towards them to make the character bigger or backwards to make it smaller.
- The bottom icon allows the layering of characters and/or props.
- The character can be moved around by left clicking and dragging.

4. Next ask students to add a text bubble. They can do this by left clicking on the text bubble icon. The text bubble will appear in the top left hand portion of the screen. Students can then write in their name, form and the title of the storyboard they are about to complete. If they need to make the bubble bigger, they do this by passing the cursor over the right or bottom borders until a double arrowhead appears. They should then click and drag to size. To move the bubble to elsewhere on the screen students should hover over the top of the bubble until the hand appears, left click to grab it and then drag to position.

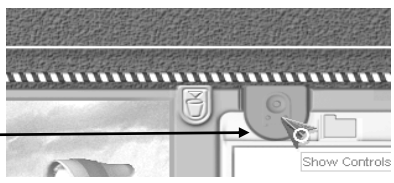




5. Finally, students could be asked to add some sound, either in the form of a sound effect or a recording of their own voice. In either case they should begin by clicking on the text/audio tab at the bottom of the screen.



Next they should click on the show controls icon at the top of this text/ audio frame. This will bring up the audio control panel.



To add a sound effect they should click on the orange folder, then select one of the sound effects offered by clicking on it and then on open. If they want to preview these sound effects they should click on the effect and then on play. To record their own voices students press on the red microphone icon and speak into their microphones. To stop the recording they should press the square red button. They will be prompted to give their soundfile a name. They type this into the box and then click on save. The sound is attached to their frame.

Students will now know how to use the main functions of Kar2ouche. Encourage them to play in order to learn what other things it can do, for instance how to attach a soundfile to a frame.

Useful Contacts

General Websites

The following websites were active at the time of publication, but before using with students it is worth checking their current availability and the suitability of the coverage for the age of students you are teaching.

Countryside Foundation for Education
A useful website for planning farm visits. CFE aims to ensure that school trips to farms are safe, enjoyable and educationally worthwhile.
http://www.countrysidefoundation.org.uk

Farms for Schools
Provides access to outdoor learning opportunities for children every year through its Countryside Live events. It includes resources for teachers.
http://www.farmsforschools.org.uk/

UK Agriculture
Lots of facts, information and pictures on all forms of farming.
http://www.ukagriculture.com/uk_farming.cfm

North York Moors National Park
For a good example of how location and landscape affect farming.
http://www.visitnorthyorkshiremoors.co.uk/content.php?nID=496

National Parks
A good general information site.
http://www.nationalparks.gov.uk/

The Ferguson Family Museum site
Provides a wealth of information on Harry Ferguson's invention of the three-point linkage that revolutionised tractor development from the 1930s.
http://www.ferguson-museum.co.uk/

All web addresses were correct at the time of going to press, but are subject to change. *You may like to add other addresses you come across onto the next page:*

Website	URL	Comments

Useful Books

Dumas, Philippe (1999) *Top of Form: The Farm*, Chrysalis Children's Books ISBN 1862053529

Activities

Unit 1: Descriptions of the Farm

Curriculum Area: ICT and Literacy

Overview of Unit

In this unit students will identify writing styles appropriate to different audiences and purposes. They will then focus on how narrative is composed, before writing their own story based in a rural setting and in which location and atmosphere are important.

Key Stage/Year

Key Stage 2/Years 3-6

Activities

The unit comprises four activities that form the backbone of a sequence of lessons to support ICT and Literacy. You may want to supplement or adapt these activities to meet the needs of your particular class.

1. **Two Approaches**
2. **Writing to Entertain**
3. **Planning Narratives**
4. **Writing and Reviewing**

Assessment Opportunities

Assessment for Learning In Activity 3 students are asked to peer-review each other's work, describing good points and suggesting one area for improvement. Students complete self reviews of the narrative they have written in Activity 4 and use this to refine their work for formal submission.

Assessment of Learning Students could submit their *Writing Conventions* and *Language and Purpose* sheets from Activity 1 for assessment, so that you can judge how far they have grasped the concepts. In Activity 4 students submit their final printed storyboard for formal assessment.

Outcomes

By the end of this unit, students will have:

- identified purpose and audience in a number of pieces of writing
- analysed a piece of narrative text
- created a storyboard of ideas for atmospheric writing
- planned and written a narrative storyboard and used this to produce a graphic novel/story.

Curriculum References ICT

1 Finding things out

1a to talk about what information they need and how they can find and use it

1b how to prepare information for development using ICT, including selecting suitable sources, finding information, classifying it and checking it for accuracy

1c to interpret information, to check it is relevant and reasonable and to think about what might happen if there were any errors or omissions.

2 Developing ideas and making things happen

2a how to develop and refine ideas by bringing together, organising and reorganising text, tables, images and sounds as appropriate.

3 Exchanging and sharing information

3b to be sensitive to the needs of the audience and think carefully about the content and quality when communicating information.

4 Reviewing, modifying and evaluating work as it progresses

4a review what they and others have done to help them develop their ideas

4b describe and talk about the effectiveness of their work with ICT, comparing it with other methods and considering the effect it has on others

4c talk about how they could improve future work.

Curriculum References Literacy

Primary Framework for Literacy – Primary National Strategy

Strand 7: Understanding and Interpreting Texts

All students will (Years 3 and 4):

- identify and make notes of the main points of sections of text/ identify and summarise evidence from a text to support a hypothesis
- infer characters' feelings in fiction and consequences in logical explanations/deduce characters' reasons for behaviour from their actions and explain how ideas are developed in non-fiction texts
- explore how different texts appeal to readers using varied sentence structures and descriptive language/ explain how writers use figurative and expressive language to create images and atmosphere.

Most students will (Years 4 and 5):

- identify and summarise evidence from a text to support a hypothesis/make notes on and use evidence from across a text to explain events or ideas
- deduce characters' reasons for behaviour from their actions and explain how ideas are developed in non-fiction texts/infer writers' perspectives from what is written and from what is implied
- explain how writers use figurative and expressive language to create images and atmosphere/explore how writers use language for comic and dramatic effects.

Some students will (Years 5 and 6):

- make notes on and use evidence from across a text to explain events or ideas/analyse a text quickly, deciding on its value, quality or usefulness
- infer writers' perspectives from what is written and from what is implied/understand underlying themes, causes and points of view
- explore how writers use language for comic and dramatic effects/ recognise rhetorical devices used to argue, persuade, mislead and sway the reader.

Strand 9: Creating and Shaping Texts

All students will (Years 3 and 4):

- make decisions about form and purpose, identify success criteria and use them to evaluate their writing/develop and refine ideas in writing using planning and problem-solving strategies
- use beginning, middle and end to write narratives in which events are sequenced logically and conflicts resolved/use settings and characterisation to engage readers' interest
- select and use a range of technical and descriptive vocabulary/ show imagination through the language used to create emphasis, humour, atmosphere or suspense
- use layout, format, graphics and illustrations for different purposes/choose and combine words, images and other features for particular effects.

Most students will (Years 4 and 5):

- develop and refine ideas in writing using planning and problem-solving strategies/reflect independently and critically on their own writing and edit and improve it
- use settings and characterisation to engage readers' interest/ experiment with different narrative forms and styles to write their own stories
- show imagination through the language used to create emphasis, humour, atmosphere or suspense/ vary the pace and develop the viewpoint through the use of direct and reported speech, portrayal of action and selection of detail
- choose and combine words, images and other features for particular effects/create multi-layered texts, including use of hyperlinks and linked web pages.

Some students will (Years 5 and 6):

- reflect independently and critically on their own writing and edit and improve it/set their own challenges to extend achievement and experience in writing
- experiment with different narrative forms and styles to write their own stories/use different narrative techniques to engage and entertain the reader
- vary the pace and develop the viewpoint through the use of direct and reported speech, portrayal of action and selection of detail/select words and language drawing on their knowledge of literary features and formal and informal writing
- create multi-layered texts, including use of hyperlinks and linked web pages/integrate words, images and sounds imaginatively for different purposes.

Teacher Notes

Activity 1 Two Approaches

Overview of Activity

In this activity students read two accounts of farming life and compare them in terms of audience and purpose.

Group Organisation

This activity begins with the group divided into two, with members of each group working individually. Members from each group are then paired. The storyboard can be completed individually or in pairs – working in pairs would provide the opportunity for them to discuss their ideas.

Suggested Timing

The activity is likely to be completed in one to two sessions of around 40 minutes to one hour.

Objectives

All students will: recognise that people write differently according to purpose and audience, and make notes of the main points in a text.

Most students will: identify how texts are appropriate to particular audiences and purposes using appropriate evidence from the text to support their ideas.

Some students will: describe the features of language that are appropriate for different purposes and audiences, as well as make notes and use evidence from across the texts to support their ideas.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

- **Modern Farming** storyboard and/or Sheet 1.1a *Modern Farming*
- **Interview with a Farmer** storyboard and/or Sheet 1.1b *Interview with a Farmer*
- **Purpose and Audience** storyboard

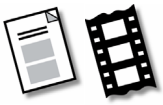
Sheet 1.1c *Writing Conventions*

Sheet 1.1d *Language and Purpose*

Key Words: audience, purpose, imagine, explore, entertain, inform, explain, describe, persuade, argue, advise, analyse, review, comment, figurative, adjective, adverb, metaphor, simile, impersonal, tone, vocabulary, technical

Activities

Introduction



1. Divide the group into two: Group A and Group B. Ask Group A to read Sheet 1.1a *Modern Farming* and Group B to read Sheet 1.1b *Interview with a Farmer*. Alternatively, groups can listen to the extracts in the **Modern Farming** and/or **Interview with a Farmer** storyboards.
2. Create pairs of A and B students and ask them to describe what they have read to each other. Ask them to consider which they think is the better piece of writing and why.

Development

3. Discuss with students that maybe neither extract is necessarily 'better' than the other because how we judge writing is dependent on purpose and audience.

4. Ask students to open the **Purpose and Audience** storyboard and match the purpose with the audience in each frame.

Content of the Purpose and Audience storyboard

First frame Title and instructions to delete anything that is inappropriate by dragging it to the bin.

Frame 2 Image of a female student reading a book with a thought bubble, 'When did the Normans invade?' The following list of purposes: imagine, explore, entertain, inform, explain, describe, persuade, argue, advise, analyse, review and comment.

Frame 3 Image of a woman reading the back of a packet with thought bubble, 'How long do I cook this?' List of purposes: imagine, explore, entertain, inform, explain, describe, persuade, argue, advise, analyse, review and comment.

Frame 4 Image of a man reading a party political leaflet with thought bubble, 'Do I believe this?' List of purposes: imagine, explore, entertain, inform, explain, describe, persuade, argue, advise, analyse, review and comment.

Frame 5 Image of a couple reading a holiday brochure with speech bubbles, 'Where do we want to go?' 'What time of year is best?' 'What will it cost us?' List of purposes: imagine, explore, entertain, inform, explain, describe, persuade, argue, advise, analyse, review and comment.

Frame 6 Image of a male author sitting at desk with computer. Thought bubble, 'So how do I keep my readers excited? Should the dog jump in to save Billy or not?' List of purposes: imagine, explore, entertain, inform, explain, describe, persuade, argue, advise, analyse, review and comment.

Frame 7 Image of a male teacher reading a letter with thought bubble, 'Oh dear, this parent isn't happy with the school meals. With what she says her son has eaten, I can understand her point.' List of purposes: imagine, explore, entertain, inform, explain, describe, persuade, argue, advise, analyse, review and comment.

5. Ask students to complete Sheet 1.1c *Writing Conventions* for each piece of writing, so that they can identify the audience and purpose as well as explain why they think this.

Plenary

6. Bring the group back together to discuss how they worked out the purpose and audience by looking at the language and structure.

Extension/ Homework

7. Students could find everyday examples of each type of writing described on Sheet 1.1d *Language and Purpose*.

Student Notes

Activity 1 Two Approaches

Objectives

In this activity you will:

- read, or listen to, two different accounts of a farming day and compare them in terms of audience and purpose.

Outcome

You will:

- match audience and purpose for different types of writing.

Resources

To complete this activity you will need:

- the **Modern Farming** storyboard and/or Sheet 1.1a *Modern Farming*
- the **Interview with a Farmer** storyboard and/or Sheet 1.1b *Interview with a Farmer*
- the **Purpose and Audience** storyboard
- Sheet 1.1c *Writing Conventions*
- Sheet 1.1d *Language and Purpose*

Activities

Introduction

1. Your teacher will put you in Group A or Group B and give you a sheet to read. This will be either Sheet 1.1a *Modern Farming* or Sheet 1.1b *Interview with a Farmer*. Read the sheet carefully. If you prefer, you can listen to the two pieces.

   click here to open the **Modern Farming** storyboard.

   click here to open the **Interview with a Farmer** storyboard.

2. Working with a partner who read the other sheet, describe what you have read to each other.
3. Which do you think is the better piece of writing and why?

Development

4. How did you judge the writing?
5. Did you think about for whom it was written and why?
6. Open the **Purpose and Audience** storyboard and match the purpose with the audience in each frame.

   click here to open the **Purpose and Audience** storyboard.

7. Complete Sheet 1.1c *Writing Conventions*.

Student Notes

Plenary

8. How did you work out the purpose and audience for each piece of writing? How would you describe the language each writer used? How was the writing structured? What type of vocabulary was used?

Extension/Homework

9. Find examples of each type of writing described on Sheet 1.1d *Language and Purpose.*

Sheet 1.1a

Modern Farming

As I gaze at the large pile of silage, covered with black plastic and weighted with tyres, I smile to myself. Despite all the troubles on the farm, at least I have winter feed for my dairy herd.

Gone are the days of baling hay for feed, thank goodness. I remember toiling for weeks trying to make hay for winter feed. It was of such variable quality. The problem was that hay made early could be ruined by bad weather, whereas hay made later wasn't of such good quality. With poorer food I had to buy supplements for the herd to keep the milk production up.

We're a traditional farm and it took some soul-searching for us to decide to change, but change we did. One momentous spring we built a silage clamp to put the grass in. Everything was fine until milk quotas were introduced and we had to cut milk production by 10%. This was a shock, but we carried on. Farming is always beset by troubles; we're used to them.

Now, every spring, a contractor arrives with his shiny new equipment and together, if the weather holds, we make the winter's silage in around 48 hours. This is a tense time as we watch the heavens for any sign of rain. Hardly anyone dares breathe and tempers are always frayed.

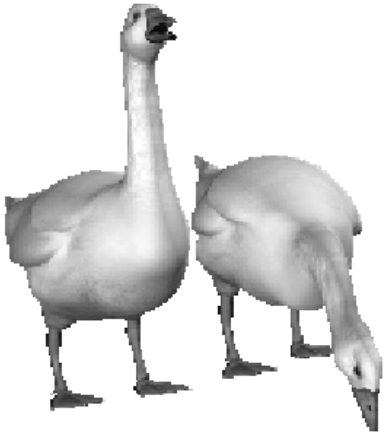
On the first day the enormous mower arrives to cut over a hundred acres. It's an awesome sight. By the evening the forage harvester and the loading shovels turn up. The harvester loads grass into the trailers and the shovels put the grass into the clamp.

Things don't always go to plan. One year the forage harvester digested the mattock that I'd lost the previous autumn. With an ear-piercing shriek of metal on metal, the whole machine ground to a halt. Last year one of the shovels simply broke down; something mechanical just conked out. Memories of these events increased the tension as we awaited this year's arrivals, but surprisingly all went to plan.

I glance again at the huge pile of silage and look up. In the gathering dusk, the team leaves. I watch the diminishing rear lights twinkling a merry farewell. Lazily, I survey my valley farm with its fields of shorn grass contrasting with the still lush grazing paddocks and feel at peace with the world. Contented, I feel that I must be a reasonable custodian of my little bit of land.

Sheet 1.1b

Interview with a Farmer



Interviewer: Welcome to *Farming Today*. As part of our series exploring life on a modern farm we talk to Mr Jones, who runs a small livestock farm in the Cotswolds.

Interviewer: Hello Mr Jones. Let's start with an old favourite question for farmers. What time do you get up?

Farmer: The alarm goes off at 6.00 and I listen to the farming programme on the radio as I get ready to go out.

Interviewer: What do you do first?

Farmer: I clean the milking parlour, bring the cows in for milking and then scrape away the slurry.

Interviewer: When do you have breakfast?

Farmer: As soon as milking is over, about eight-ish usually.

Interviewer: What do you have?

Farmer: I don't have time for much – a cup of tea and some toast, sometimes a bit of bacon, but not often.

Interviewer: What do you do after breakfast?

Farmer: My wife and I feed the animals, clean out those that need it and put fresh straw bedding where it's necessary.

Interviewer: How do you react to the criticism that farmers are always moaning?

Farmer: I guess we do a bit, but it's a tough life. We're at the mercy of the weather, government policy and the pressure put on us by the big supermarket chains pushing for ever lower prices. Do you know as a nation we are prepared to pay more for bottled water than we are for milk?

Interviewer: What is your favourite part of the day?

Farmer: Early morning in late spring; the sun's coming up and the birds are singing. It's glorious.

Interviewer: How do you relax?

Farmer: I sing in the church choir and have a pint in the local.

Interviewer: Which part of your work do you like least?

Farmer: Sending my lambs to the abattoir.

Interviewer: Some people complain about the subsidies farmers get. What would you say to them?

Farmer: I'd say they need to find out a bit more. The subsidies aren't big and they're terribly hard to get. They're there for a reason and it's not charity.

Interviewer: What contribution do you think farming makes to modern life?

Farmer: Well, I know that on our farm we produce good local food at reasonable prices and where possible we sell it locally to reduce food miles. We also employ a couple of local people to help out on the farm. We farm organically so we look after the environment now and for future generations. We care passionately about the welfare of our animals and, by maintaining the hedgerows and leaving some of the fields fallow with wild flowers, we encourage wildlife. I spend time looking after the footpaths on my land for those who want to visit the countryside and we also provide reasonably priced Bed and Breakfast accommodation for walkers.

Interviewer: When do you finish work?

Farmer: Anywhere between 6.30 and 8.00. It's often even later in the summer – you get as much done as you can in the light.

Interviewer: Would you change your life?

Farmer: Get away with you. No, I love life on the land and with farming you feel you're giving something back to the community.

Sheet 1.1c

Writing Conventions

Convention	Modern Farming	Interview with a ...
PURPOSE		
What does the writer want to achieve?		
Who will read/hear it?		
How will it be used?		
TEXT		
What is the layout of the sheets like? Does it suggest the purpose?		
How is the text organised or structured?		
Are the ideas in a particular sequence or order? What is it?		
SENTENCE		
What is the viewpoint? (First or third person)		
What tense is used most frequently? (Past, present, future, conditional)		
Is the voice active or passive?		
Are the sentences long or short, simple or complex, or a mixture?		
VOCABULARY		
Are any words repeated? Which ones? Why?		
Is the vocabulary specialised/technical?		
Does the writer use figurative language? (Adjectives, adverbs, metaphors, similes, etc)		

Sheet 1.1d

Language and Purpose

PURPOSE	TYPICAL FEATURES of LANGUAGE	EXAMPLE(s)
Recount to retell events	• in time order • often past tense • first person • connectives to show time passing • factual	
Report/Inform to describe something	• introduces subject to be described • organised in topics (not time) • often present tense • third person – formal • factual	
Instruct/Advise	• introduces outcome at start • often includes diagrams or pictures • sequenced steps • present tense (and imperative) • clear, plain, direct language • impersonal	
Explain	• begins with definition of problem • organised in logical steps • sometimes includes diagrams • present tense • defines technical vocabulary	
Persuade	• begins by stating argument • organised according to main points and illustrations of points • concludes with repetition of main points • often present tense • logical • emotive	

PURPOSE	TYPICAL FEATURES of LANGUAGE	EXAMPLE(s)
Discuss	• defines point to be discussed • organised in paragraphs for and against • gives evidence for beliefs both ways • present tense • formal and impersonal • logical and clear structure	
Entertain/Imagine	• opens with description of place or character, speech or surprising statement • story often sparked by conflict or problem • series of events reaching a climax • ends with resolution • can play with conventions of time • descriptive/figurative language to create atmosphere • sentences and paragraphs vary in length	

Teacher Notes

Activity 2 Writing to Entertain

Overview of Activity

In this activity students will listen to, and read, some descriptive extracts from *The Secret Garden* by Frances Hodgson Burnett and then comment on the language. Prompted by pictures of the countryside, students will make notes that they could use in descriptive paragraphs and share their ideas with the class.

Group Organisation

This lesson begins with a whole-class activity, before students work individually (or in pairs). They come back together to share ideas at the end.

Suggested Timing

The activity should be completed in one lesson of 40 minutes to an hour.

Objectives

All students will: explore how different texts appeal to readers, as well as select and use a range of descriptive vocabulary to create atmosphere. They will also use the internet to source a dictionary and thesaurus.

Most students will: explain how writers use figurative and expressive language to create images and atmosphere, as well as show imaginative use of language to create a setting that will engage a reader's interest. They will also research figurative language and tips for authors using the internet.

Some students will: explore how writers use language, as well as select words and language drawing on their knowledge of literary features.

Resources

Kar2ouche On the Farm: *ICT Across the Curriculum*

- **Secret Garden** storyboard
- **Stimuli** storyboard

Sheet 1.2a *Secret Garden Extracts*

Key Words: audience, purpose, imagine, explore, entertain, inform, explain, describe, persuade, argue, advise, analyse, review, comment, figurative, adjective, adverb, metaphor, simile, impersonal, tone, vocabulary, technical

Activities

Introduction

1. Open the **Secret Garden** storyboard and watch with the class. Discuss the type of writing in the extracts and how the author creates the atmosphere.

Content of the Secret Garden storyboard

First frame Title

Following frames Extracts from *The Secret Garden* by Frances Hodgson Burnett with text, images and audio. (See Sheet 1.2a *Secret Garden Extracts*.)

Development

2. Having watched the storyboard, ask students to read the extracts on Sheet 1.2a *Secret Garden Extracts* and to make notes in response to the prompts at the end. If appropriate, show students how to get definitions of words they don't understand from the internet. One place to start: http://www.dictionarylink.com.
This provides a dictionary and thesaurus.

3. Ask students to open the **Stimuli** storyboard and to make notes that would help them write a descriptive paragraph about each image. You could add extra pictures, maybe following a farm visit, for students to describe. To add digital images, click on the backgrounds tab and the folder at the bottom of the palette. Navigate to where the images are stored and click on open. The image will then be added to the end of the palette for adding to your storyboards.

Content of the Stimuli storyboard

First frame Title

Frame 2 Image with exemplar notes.

Following frames Images from farms and the countryside at different times of day.

4. Show students how to improve vocabulary using an internet thesaurus, such as http://www.thefreedictionary.com. Scroll down to the thesaurus section and show students how it works.

Plenary

5. Bring students back together and work through the images on the **Stimuli** storyboard – ask for ideas, phrases, adjectives, metaphors and similes, prompted by the pictures. Create a collaborative version on the whiteboard by adding some of the better ones to the caption windows. This storyboard can then be printed out for class display.

Extension/ Homework

6. Ask students to find a good, atmospheric piece of descriptive writing from one of their favourite books or online and to write about it using the 'Looking at Language' prompts at the end of Sheet 1.2a *Secret Garden Extracts.*

Student Notes

Activity 2 Writing to Entertain

Objectives

In this activity you will:

- investigate the language of descriptions in stories
- make notes for your own piece of descriptive writing
- evaluate a range of ideas.

Outcomes

You will:

- make notes on images that would help you to write a descriptive paragraph
- write about a paragraph from a storybook that you like.

Resources

To complete this activity you will need:

- the **Secret Garden** storyboard
- the **Stimuli** storyboard
- Sheet 1.2a *Secret Garden Extracts*

Activities

Introduction

1. Open the **Secret Garden** storyboard. You'll read and hear a number of extracts from a famous storybook. What sort of writing is this? How do you know?

   click here to open the **Secret Garden** storyboard.

Development

2. Now read the extracts on Sheet 1.2a *Secret Garden Extracts* and make notes in response to the prompts at the end.
3. Open the **Stimuli** storyboard and make notes that would help you write a descriptive paragraph about each image. Think carefully about the atmosphere you want to create; time of day and weather will influence this.

   click here to open the **Stimuli** storyboard.

Plenary

4. Compare your ideas with others in your class. Make a note of the phrases, adjectives, metaphors and similes that you like best.

Extension/Homework

5. Find a good piece of descriptive writing from one of your favourite books. Write about it using the 'Looking at Language' prompts at the end of Sheet 1.2a *Secret Garden Extracts*.

Sheet 1.2a

Secret Garden Extracts

When she passed through the shrubbery gate she found herself in great gardens with wide lawns and winding walks with clipped borders. There were trees, and flower-beds, and evergreens clipped into strange shapes, and a large pool with an old grey fountain in its midst. But the flower-beds were bare and wintry and the fountain was not playing.

From Chapter 4: Martha

Mary went to the green door and turned the handle. She hoped the door would not open, because she wanted to be sure she had found the mysterious garden – but it did open quite easily and she walked through it and found herself in an orchard. There were walls all around it also and trees trained against them, and there were bare fruit-trees growing in the winter-browned grass – but there was no green door to be found anywhere. Mary looked for it, and yet when she had entered the upper end of the garden she had noticed that the wall did not seem to end with the orchard, but to extend beyond it as if it enclosed a place at the other side. She could see the tops of trees above the wall, and when she stood still she saw a bird with a bright red breast sitting on the topmost branch of one of them, and suddenly he burst into his winter song – almost as if he had caught sight of her and was calling to her.

She stopped and listened to him, and somehow his cheerful, friendly little whistle gave her a pleased feeling – even a disagreeable little girl may be lonely, and the big closed house and big bare moor and big bare gardens had made this one feel as if there was no one left in the world but herself.

From Chapter 4: Martha

The flower-bed was not quite bare. It was bare of flowers because the perennial plants had been cut down for their winter rest, but there were tall shrubs and low ones which grew together at the back of the bed, and as the robin hopped about under them she saw him hop over a small pile of freshly turned-up earth. He stopped on it to look for a worm ...

Mary looked at it, not really knowing why the hole was there, and as she looked she saw something almost buried in the newly turned soil. It was something like a ring of rusty iron or brass, and when the robin flew up into a tree near by she put out her hand and picked the ring up. It was more than a ring, however; it was an old key which looked as if it had been buried a long time.

From Chapter 7: The Key of the Garden

One of the nice little gusts of wind rushed down the walk, and it was a stronger one than the rest. It was strong enough to wave the branches of the trees, and it was more than strong enough to sway the trailing sprays of untrimmed ivy hanging from the wall. Mary had stepped close to the robin, and suddenly the gust of wind swung aside some loose ivy trails, and more suddenly still she jumped towards it and caught it in her hand. This she did because she had seen something under it – a knob which had been covered by the leaves hanging over it. It was the knob of a door.

She put her hands under the leaves and began to pull and push them aside. Thick as the ivy hung, it nearly all was a loose and swinging curtain, though some had crept over wood and iron ... The robin kept singing and twittering away and tilting his head on one side, as if he were as excited as she was. What was this under her hands which was square and made of iron and which her fingers found a hole in? It was the lock of the door which had been closed ten years ...

From Chapter 8: The Robin Who Showed the Way

The sun was shining inside the four walls and the high arch of blue sky over this particular piece of Misselthwaite seemed even more brilliant and soft than it was over the moor ... Everything was strange and silent, and she seemed to be hundreds of miles away from anyone, but somehow she did not feel lonely at all ...

There had once been a flower-bed in it, and she thought she saw something sticking out of the black earth – some sharp little pale green points ... She bent very close to them and sniffed the fresh scent of the damp earth. She liked it very much ...

From Chapter 9: The Strangest House Anyone Ever Lived In

All extracts from: *The Secret Garden* by Frances Hodgson Burnett

Looking at Language

- Underline all of the adjectives and adverbs. What do these add to your enjoyment of the writing?

- As you read, what colours are repeated? Colour over them with a crayon. How does this contribute to the picture you have in your head? Are there any surprising or pronounced colours? What do they add?

- There are lots of visual details, but what other senses are described? Make a list of any smells, textures, sounds and tastes described.

smells	textures	sounds	tastes

- Does the writer repeat any words or phrases? Put circles round them. What effect does the repetition have?

- Can you find any examples of metaphors, similes or personification? What do these add?

metaphors	similes	personification

Teacher Notes

Activity 3 Planning Narratives

Overview of Activity

In this activity students will take their favourite image as the start of a story based on a farm or in the countryside. They will plan the story and write the opening paragraph.

Group Organisation

The lesson begins with a whole-class introduction to planning. Students then work on their own. At the end, if there is time, they can peer-evaluate each other's work.

Suggested Timing

This activity should be completed in one session of 40 minutes to an hour.

Objectives

All students will: use beginning, middle and end to plan a narrative in which events are sequenced logically and conflicts resolved, as well as use setting and characterisation to engage readers' interest. They will also use ICT to develop and refine their ideas.

Most students will: develop and refine ideas in writing using planning; use settings and characterisation to engage readers' interest and show imagination through the language used to create atmosphere. They will also use ICT to review, modify and evaluate work as it progresses.

Some students will: experiment with different narrative forms, styles and techniques to engage the reader and select details, words and language drawing on their knowledge of literary features.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

- **Stimuli** storyboard
- **Planning** storyboard

Sheet 1.3a *Structure in The Three Little Pigs*

Sheet 1.3b *My Thoughts*

Key Words: narrative, structure, beginning, middle, end, introduction, conflict, event, climax, resolution, atmosphere, description

Activities

Introduction

1. Ask pairs, or small groups, of students to share their favourite descriptive passages, researched as an extension to the last activity, and to explain what is good about each one.
2. Ask the pairs or groups to select one or two good sentences to share with the class.

3. Introduce the idea of structure in a story, starting with middle, beginning and end, and then, if appropriate, extending this to Todorov's theory with: beginning/introduction, conflict, events reaching a climax, resolution and ending. Model this with a familiar story, for example *The Three Little Pigs*. Students can work this out for themselves on Sheet 1.3a *Structure in The Three Little Pigs*. Alternatively, work through it together on the board.
   - Beginning/introduction – happy little brothers living at home.
   - Conflict – decide to leave home and build their own houses, but threat of wolf looms large.
   - Events leading to climax – building of three houses, first two of which destroyed by wolf, but pigs escape, third house strong enough to withstand the wolf's attack.
   - Resolution – wolf climbs down chimney and killed, so threat removed.
   - Ending – three pigs live happily ever after.

Development

4. Students should open their saved version of the **Stimuli** storyboard and add their favourite image into the first frame of the **Planning** storyboard. They can then also copy the notes from the **Stimuli** caption window to the new caption window under the copied image.

Content of the Planning storyboard

First frame Title and instructions to add image and copy notes from their **Stimuli** storyboard into frame 2. When they have done this, they should make notes on each element of the story they are going to write.

Frame 2 Blank, apart from words Beginning or Introduction at top of caption window.

Frame 3 Heading: Conflict.

Frames 4-6 Headings: Events 1-3 (students could delete one of these if necessary).

Frame 7 Heading: Climax.

Frame 8 Heading: Resolution.

Frame 9 Heading: Ending or Conclusion.

5. Having created the plan, ask students to turn the notes in the beginning/introduction frame into the first paragraph of their story. It should create an atmosphere appropriate to the story which will follow.

Plenary

6. Share some of the introductions as a class. Discuss what students like and how they might improve each one. They could record their ideas on Sheet 1.3b *My Thoughts*.

Extension/ Homework

7. Students could print out their plans and think about/add to them before the next session.

Student Notes

Activity 3 Planning Narratives

Objectives

In this activity you will:

- look at the steps in planning a story
- use notes to create the opening paragraph of the story you have planned.

Outcomes

You will:

- analyse the structure of a familiar story
- create a storyboard plan for a story you want to write
- write the opening descriptive paragraph of a story you will develop later.

Resources

To complete this activity you will need:

- your completed **Stimuli** storyboard
- the **Planning** storyboard
- Sheet 1.3a *Structure in The Three Little Pigs*
- Sheet 1.3b *My Thoughts*

Activities

Introduction

1. With a partner, or in a small group, compare the descriptive passages you have chosen.
2. Choose one or two good sentences to share with the class. Explain what you like about them and why they are so good.
3. Many stories follow a similar pattern. They have a beginning, a middle and an end. How would you describe the beginning, middle and end of *The Three Little Pigs*?
4. Sometimes you can break this plan down into smaller parts: beginning, conflict, events, climax, resolution and ending. How would you describe *The Three Little Pigs* using these headings? Your teacher might ask you to make a note of these on Sheet 1.3a *Structure in The Three Little Pigs*.

Development

5. Open your saved version of the **Stimuli** storyboard. Copy your favourite image into the first frame of the **Planning** storyboard. Now copy the notes from the **Stimuli** caption window to the new caption window under the copied image.

   click here 2 to open the **Planning** storyboard.

Student Notes

6. Now imagine the story that might start in such a location. Make notes on each part of the story you are going to write.
7. Turn the notes in the beginning/introduction frame into the first paragraph of your story. Make sure that you create an atmosphere appropriate to the story you are going to tell.

Plenary

8. Share some of the introductions with the class or in a small group. What parts of each other's work do you like? Which little bit of each one could you improve and how? You might want to record your ideas on Sheet 1.3b *My Thoughts*.

Extension/Homework

9. Print out your plan and think about/add to it before the next session, when you will finish your story.

Sheet 1.3a

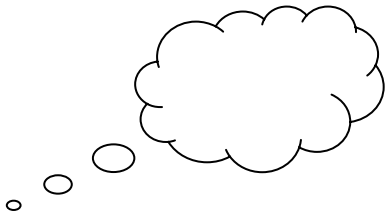
Structure in *The Three Little Pigs*

Complete the following table with notes to show the main parts of the story.

Beginning/ Introduction	
Conflict	
Events and Climax	
Resolution	
Ending/ Conclusion	

Sheet 1.3b

My Thoughts



Name of Writer:
☺ First Good Point
☺ Second Good Point
😐 Point for Improvement
Name of Writer:
☺ First Good Point
☺ Second Good Point
😐 Point for Improvement
Name of Writer:
☺ First Good Point
☺ Second Good Point
😐 Point for Improvement

Teacher Notes

Activity 4 Writing and Reviewing

Overview of Activity

In this activity students will complete the story they planned in the last activity and review each other's work.

Group Organisation

This lesson begins with a brief group activity before the individual writing work. This is followed by group reviews, before students complete their work alone.

Suggested Timing

This activity should take one to two 40-minute to one-hour lessons.

Objectives

All students will: use beginning, middle and end to write a narrative in which events are sequenced logically and conflicts resolved, as well as use setting and characterisation to engage readers' interest. They will also use ICT to develop and refine their ideas.

Most students will: develop and refine ideas in writing using settings and characterisation to engage readers' interest and show imagination through the language used to create atmosphere. They will also use ICT to review, refine and evaluate their work as it progresses.

Some students will: experiment with different narrative forms, styles and techniques to engage the reader and select details, words and language drawing on their knowledge of literary features. They will also be sensitive to the needs of their audience.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

Sheet 1.4a *Self Review*

Key Words: criteria, evaluate, refine, accuracy, figurative language, form, purpose, audience

Activities

Introduction

1. Recap the planning activity from the last lesson and, if necessary, remind students where work is saved.
2. Brainstorm the criteria that make a good story and ask students to make a note of these, so that they can use them to evaluate their own work later.

Development

3. Ask students to open the storyboard they started in the last activity and to turn the notes in each caption window into continuous prose.
4. Before sharing work with others, ask students to re-read what they have written and assess it against the criteria they noted earlier. Alternatively, they could use Sheet 1.4a *Self Review*.

Plenary

5. Ask students to work in pairs to evaluate each other's work and, where necessary, to comment on the self reviews.

Extension/ Homework

6. Based on the comments of their partner, students should refine work before printing in graphic-novel form and submitting for assessment.

Student Notes

Activity 4 Writing and Reviewing

Objectives

In this activity you will:

- complete your story, review it with a partner and refine it.

Outcome

You will:

- create a graphic-novel version of your story.

Resources

To complete this activity you will need:

- the storyboard you started in the last activity
- Sheet 1.4a *Self Review* (*optional*)

Activities

Introduction

1. What makes a good story? Discuss with your class and make a list of the best ideas.

Development

2. Open the storyboard you started in the last activity.
3. Turn the notes in each caption window into paragraphs to tell your story.
4. Re-read what you have written. How well does it fit with the points in a good story that you noted earlier? You might want to use Sheet 1.4a *Self Review* to help you judge your story.

Plenary

5. Work with a partner to evaluate each other's work.
6. If you completed the self-review sheet, does your partner agree with your comments?

Extension/Homework

7. Think about the comments your partner made. Do you agree? If so, go through your work and make changes that you think will improve it.
8. Print out as a graphic novel. Don't forget to add your name.

Sheet 1.4a

Self Review

Accuracy		
My Comments	**A Partner's Comments**	Tick if agree
Spelling:		
Punctuation:		
Grammar:		
Planning		
Middle, beginning, end:		
Easy to follow and good paragraphs:		
Language		
Vocabulary:		
Use of detail:		
Adjectives/adverbs:		
Figurative language:		
Other Comments		

Use another sheet if necessary

Unit 2: A Day in the Life

Curriculum Area: ICT and Maths

Overview of Unit

In this unit students will look at a typical farmer's day and work out fractions using a 24-hour clock. They will also have the opportunity to use coordinates to locate places and measure field sizes using maps and scale. Finally, students will interpret bar graphs on yearly milk production and carry out calculations based on the figures.

Key Stage/Year

Key Stage 2/Years 3-6

Activities

The unit comprises three activities that form the backbone of a sequence of lessons to support ICT and Maths. You may want to supplement or adapt these activities to meet the needs of your particular class.

1. **Farming: 24 Hours a Day**
2. **Field Sizes**
3. **Production**

Assessment Opportunities

Assessment for Learning In Activity 1 students could discuss with a partner the reason for any corrections to Sheet 2.1b *Hours* or their storyboard. By discussing their misconceptions they should be able to put them right. In Activity 2 students are given the opportunity to compare their calculations and discuss any differences, before amending their solutions as necessary. In Activity 3 students create their own surveys, present information and devise questions – the answers to which they discuss with the people who answered them.

Assessment of Learning Students could submit Sheet 2.1b *Hours* or their storyboard from Activity 1 for assessment, so that you can judge how far they have grasped the concepts. Students can submit all of their various calculations in Activity 2 for assessment.

Outcomes

By the end of this unit, students will have:

- calculated fractions of a 24-hour day
- measured different shapes and sizes using scale
- located features with coordinates
- interpreted bar graphs and presented information in an appropriate format for the audience.

Curriculum References ICT

1 Finding things out

1a to talk about what information they need and how they can find and use it

1b how to prepare information for development using ICT, including selecting suitable sources, finding information, classifying it and checking it for accuracy

1c to interpret information, to check it is relevant and reasonable and to think about what might happen if there were any errors or omissions.

2 Developing ideas and making things happen

2a how to develop and refine ideas by bringing together, organising and reorganising text, tables, images and sounds as appropriate

2b how to create, test, improve and refine sequences of instructions to make things happen and to monitor events and respond to them.

3 Exchanging and sharing information

3a how to share and exchange information in a variety of forms, including email

3b to be sensitive to the needs of the audience and think carefully about the content and quality when communicating information.

4 Reviewing, modifying and evaluating work as it progresses

4a review what they and others have done to help them develop their ideas

4c talk about how they could improve future work.

Curriculum References Science

Using and Applying Mathematics

(Years 3 and 4)

- Solve one-step and two-step problems involving numbers, money or measures, including time, choosing and carrying out appropriate calculations.
- Represent the information in a puzzle or problem using numbers, images or diagrams; use these to find a solution and present it in context, where appropriate using £.p notation or units of measure.

(Years 4 and 5)

- Solve one–step and two-step problems involving numbers, money or measures, including time; choose and carry out appropriate calculations, using calculator where appropriate.
- Represent a puzzle or problem using number sentences, statements or diagrams; use these to solve the problem; present and interpret the solution in the context of the problem.

(Years 5 and 6)

- Solve one-step and two-step problems involving whole numbers and decimals and all four operations, choosing and using appropriate calculation strategies, including calculator use.
- Represent a puzzle or problem by identifying and recording the information or calculations needed to solve it; find possible solutions and confirm them in the context of the problem.

Measuring

(Years 3 and 4)

- Read the time on a 12-hour digital clock and to the nearest 5 minutes on an analogue clock; calculate time intervals and find start or end times for a given time interval.

(Years 4 and 5)

- Read time to the nearest minute, use am, pm and 12-hour clock notation; choose units of time to measure time intervals; calculate time intervals from clocks and timetables.

(Years 5 and 6)

- Read timetables and time using 24-hour clock notation; use a calendar to calculate time intervals.

Handling Data

(Years 3 and 4)

- Answer a question by collecting, organising and interpreting data; use tally charts, frequency tables, pictograms and bar charts to represent results and illustrate observations; use ICT to create a simple bar chart.

(Years 4 and 5)

- Answer a question by identifying what data to collect; organise, present, analyse and interpret the data in tables, diagrams, tally charts, pictograms and bar charts, using ICT where appropriate.

(Years 5 and 6)

- Answer a set of related questions by collecting, selecting and organising relevant data; drawing conclusions, using ICT to present features, and identifying further questions to ask.

Teacher Notes

Activity 1 Farming: 24 Hours a Day

Overview of Activity

In this activity students find out about a typical farmer's working day and then calculate the fraction of time he spends on different tasks.

Group Organisation

Start with small groups of three or four before moving into a full-class discussion. The development section should be completed in pairs or as individuals, before returning to class discussion for the plenary.

Suggested Timing

This activity is likely to be completed in one to two sessions of around 40 minutes to one hour.

Objectives

All students will: use a 24-hour clock to calculate time intervals and find start or end times for a given time interval.

Most students will: solve one- and two-step problems involving numbers and measures by choosing and carrying out appropriate calculations.

Some students will: collect, select and organise relevant data; draw conclusions and use ICT to present features.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

- **Farmer's 24 Hours** storyboard
- **Map of the Farm** storyboard

Sheet 2.1a *A Typical Farmer's Day*

Sheet 2.1b *Hours*

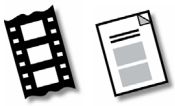
Key Words: interval, calculate, area, percentage, role, typical

Activities

Introduction

1. Working in small groups, students guess how many hours they think a dairy farmer spends sleeping, eating, working or relaxing during a typical day. They write their answers in column 1 on Sheet 2.1b *Hours* and then convert them into a fraction and enter this in column 2.
2. Students share their answers with the rest of the class.

Development



3. Students either open and watch the **Farmer's 24 Hours** storyboard or read Sheet 2.1a *A Typical Farmer's Day*.

Content of the Farmer's 24 Hours storyboard

First frame Title and instructions.

Subsequent frames Description of a day in the life of a typical dairy farmer. Refer to Sheet 2.1a *A Typical Farmer's Day* for details.

Penultimate frame At the end of the farmer's description, students are asked to work out the number of hours the farmer actually spends on each activity.

Final frame Contains a 24-hour clock into which students fit an appropriate number of segments to represent the fraction of the day that the farmer spends on each activity.

4. Using the information from the storyboard or Sheet 2.1b *Hours*, students work out the number of hours the farmer spends on each activity and convert this into a fraction. Answers should be written in columns 3 and 4 and used to complete the 24-hour clock at the end of the **Farmer's 24 Hours** storyboard.

Plenary

5. Students compare the typical working day of a parent/guardian or relative, to that of the farmer. Using the **Farmer's 24 Hours** storyboard, students can add an extra frame and insert the 24-hour clock background. Using this and the segments from the props, they can illustrate their chosen person's working day.
6. Hold a discussion on the similarities and differences between the two diagrams.

Extension/ Homework

7. Using the **Map of the Farm** storyboard, students design the shortest route around the farm following the farmer's typical day.

Content of the Map of the Farm storyboard

First frame Title and instructions.

Frame 2 Scaled aerial map of a farm showing the farmhouse, where various animals are kept, the byre, lanes, tracks, etc. Students are required to mark the shortest route the farmer could take as he/she completes their tasks.

Student Notes

Activity 1 Farming: 24 Hours a Day

Objectives

In this activity you will:

- find out about a typical farmer's working day
- calculate how much time he spends on different tasks on the farm.

Outcomes

You will:

- use calculations based on time and convert these into fractions
- create a storyboard showing fractions on a 24-hour clock
- work out distances on a map using scale.

Resources

To complete this activity you will need:

- the **Farmer's 24 Hours** storyboard and/or Sheet 2.1a *A Typical Farmer's Day*
- the **Map of the Farm** storyboard
- Sheet 2.1b *Hours*

Activities

Introduction

1. How many hours do you think a farmer spends sleeping, eating, working and relaxing? Write your answers in hours, in column 1 on Sheet 2.1b *Hours*.
2. Change your answers into a fraction of a 24-hour day and add this to column 2 of Sheet 2.1b *Hours*.
3. Share your findings with the rest of the class.

Development

4. Either open and watch the **Farmer's 24 Hours** storyboard or read Sheet 2.1a *A Typical Farmer's Day*.

   to open the **Farmer's 24 Hours** storyboard.
5. Using the information, work out the number of hours the farmer actually spends on each activity and add to column 3 on your sheet.
6. Convert the hours to a fraction of a 24-hour clock and write your answers in column 4.
7. Return to the **Farmer's 24 Hours** storyboard and complete the 24-hour clock task in the last frame.

Student Notes

Plenary

8. Choose a parent/guardian or relative and write down the number of hours they spend sleeping, eating, working and relaxing.
9. Using the **Farmer's 24 Hours** storyboard, add an extra frame to the end and insert the 24-hour clock background. Using this and the segments from the props, illustrate your chosen person's typical working day.
10. Discuss with your class the similarities and differences between the two diagrams.

Extension/Homework

11. Using the **Map of the Farm** storyboard, design the shortest route around the farm following the farmer's typical day.

to open the **Map of the Farm** storyboard.

Sheet 2.1a

A Typical Farmer's Day

The day starts when the radio alarm goes off at 6.00am. I go downstairs for a cup of tea and, as I get ready to go out, I listen to the farming programme.

Then I go out to the fields and bring in the cows for milking. Milking takes about two hours. This includes cleaning the milking parlour and scraping the slurry away from the cubicle shed.

After that I feed all the young stock and any small calves that are still on milk. Next I feed the pigs and finally, at approximately 10.00am, it's back to the farmhouse for breakfast.

Breakfast usually takes about one hour, as I talk over plans with my partner.

The pigs need cleaning out before the cows are fed on silage and rolled barley at around midday. Feeding the cattle takes about an hour. Then all the cattle need straw bedding, which I put out using the 'straw-chopping machine' on the tractor.

I usually have a late lunch from about 2 to 3pm, then I do any seasonal jobs. These change depending on the time of year. Typical tasks include repairing machines or fences, ploughing, sowing or even harvesting.

Around 5pm I feed the young stock for the second time and then at about 6pm I start milking again.

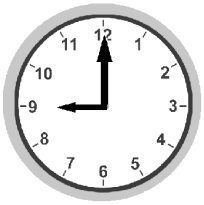
I finish at approximately 8.00pm and have my tea which, like other meals, takes about an hour.

Before I go to bed, at around 12.00, I complete any office work that needs doing. I generally watch TV or read for a couple of hours before going to bed.

I'm usually asleep before my head hits the pillow!

Sheet 2.1b

Hours



	1	2	3	4
	Number of hours you think the farmer…	**Fraction of a 24-hour day**	**Number of hours the farmer**	**Fraction of a 24-hour day**
Sleeps				
Eats				
Milks cows				
Feeds/cleans animals				
Does other farm jobs				
Office work				
Relaxes				

Teacher Notes

Activity 2 Field Sizes

Overview of Activity

In this activity, students work out the area of different sized fields on a scaled map and make calculations involving the time required by the farmer to milk and plough.

Group Organisation

Students work mainly by themselves but there is the opportunity for them to work in pairs during the development section of the activity.

Suggested Timing

This activity is likely to be completed in one to two sessions of around 40 minutes to one hour.

Objectives

All students will: find the areas of shapes by using scale and counting squares.

Most students will: solve one- and two-step problems involving numbers and measures by choosing and carrying out appropriate calculations.

Some students will: use sensible estimates in everyday situations.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

- **Measuring** storyboard
- **Fields** storyboard
- **Ploughing** storyboard
- **Milking** storyboard
- **Parts of a Cow** storyboard

Sheet 2.2a *Parts of a Cow*

Key Words: interval, calculate, area, arable, dairy, scale, square metres, acres, hectares

Activities

Introduction

1. Check that the students are familiar with measuring areas in square metres before continuing with this activity. If they are not, begin with the **Measuring** storyboard. If they are, go straight to instruction 3**.**

2. Students open and complete the **Measuring** storyboard.

Content of the Measuring storyboard

Single frame Composition window: contains a regular shape with a scaled grid.

Instructions in caption window: Using the scale, work out the size of the shape in square metres and write your answer in the space provided. (The shape was made by stretching a text box to this size. For more practice, copy the thumbnail frame to make a new frame. Change the size of the text box by left clicking and dragging at one of the corners. Ask students to work out the size of the new shape and record.)

3. Using the scale, students calculate the size of the shape in square metres and record their answer in the blank text box. Students are encouraged to copy the frame, change the size of the shape and measure again.

4. Students open the **Fields** storyboard.

Content of the Fields storyboard

First frame Title

Frame 2 Contains a bird's-eye view of three fields of different sizes and shapes with a scaled grid superimposed over each image.

Frame 3 Answer template

5. Using the grid and scale provided, students calculate the size of each of the three fields in square metres, and then add them together to work out the total area. You may want to point out that, even in this metric age, many farmers still measure the size of their fields in 'acres'. One acre = 4046.87 square metres. However, more modern farmers, and land agents, use hectares. A hectare is equivalent to 10,000 square metres (about 2.5 acres).

6. Students then convert the measurements into square kilometres or hectares and record these in their storyboard.

Development

7. In the next two storyboards, students have to complete some calculations based on two of a farmer's main tasks: ploughing and milking. Depending on the time available, you may want all students to complete both storyboards or split the class into two with each half completing one activity.

8. Students open the **Ploughing** storyboard and work out approximately how long it takes the farmer to plough the fields. (*Answers: Field One = 1hr 20 min.; Field Two = 45 min.; Field Three = 40 min. Total time for all three fields = 2hrs 45 min.).*

Content of the Ploughing storyboard

First frame Title with the following instructions – Using the information in the following frames work out how long it would take the farmer to plough each field. In the final frame, write the total time taken for all three fields in the text box.

Second frame Students are supplied with the width (50 cm) and number of the furrows (5) on the plough, and the speed of the tractor (5 km/h).

Third frame Working out template and advice on measuring techniques.

Other frames Map of fields, answer frames and further advice.

9. Students open the **Milking** storyboard and work out how long it takes the farmer to milk the herd. *(Answer: Total time taken to milk = 2hrs 10 min).*

Content of the Milking storyboard

First frame Students receive information on the number of cows (80), time to milk each one (4 mins), number of milking machines (20), and how long it takes for the cows to get to and from the milking byre (10 mins each way), plus the time needed to clean up (30 mins).

Subsequent frames Students calculate how long it takes to milk the herd and record their results in the caption window.

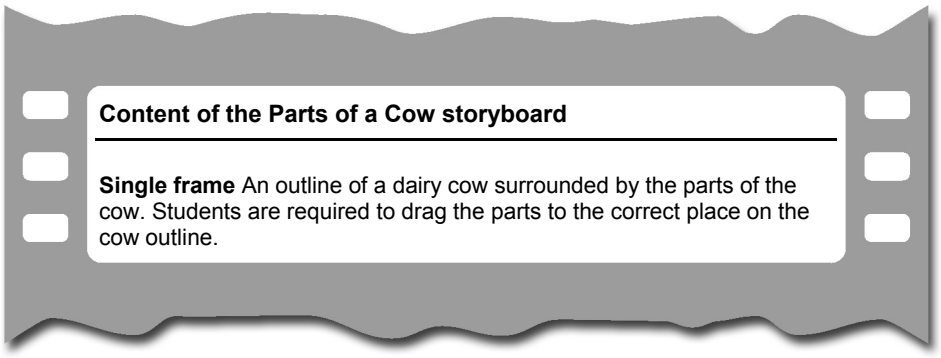
10. Ask students to compare their results with the rest of the class. Where there is disagreement, they should discuss how they got their answer and amend as necessary.

Plenary

11. Ask the students what the farmer could do in order to decrease the time taken to plough the fields. *(Possible answers: Increase the speed of the tractor; Increase the size of the furrow; Increase the number of furrows)*. If time allows, students could test out some of their ideas.
12. Discuss what the farmer could do to reduce the time needed to milk the cows. *(Possible answers: Larger byre; faster milking machines; cow field located nearer to the milking byre)*. Again, if time allows, students could test out some of their ideas.

Extension/ Homework

13. Students open and complete the **Parts of a Cow** storyboard.



14. After completing the image, students estimate the size of each of the cow parts and list them in descending order, from largest to smallest, on Sheet 2.2a *Parts of a Cow*.

Student Notes

Activity 2 Field Sizes

Objectives

In this activity you will:

- work out the area of different sized fields on a scaled map
- make calculations involving the time required by the farmer to milk and plough.

Outcomes

You will:

- complete a storyboard by measuring the size of fields
- calculate how long it takes the farmer to plough the fields and/or milk a herd of cows.

Resources

To complete this activity you will need:

- the **Measuring** storyboard
- the **Fields** storyboard
- the **Ploughing** storyboard
- the **Milking** storyboard
- the **Parts of a Cow** storyboard
- Sheet 2.2a *Parts of a Cow*

Activities

Introduction

1. Open either the **Measuring** or the **Fields** storyboard according to your teacher's instructions.

   to open the **Measuring** storyboard.

   to open the **Fields** storyboard.

2. Using the grid and scale provided, estimate the size of the fields. Record your answers in the appropriate place in your storyboards.

Development

3. Open and complete the **Ploughing** storyboard by working out how long it would take the farmer to plough the fields you measured in the **Fields** storyboard. Alternatively, open and complete the **Milking** storyboard and work out how long it takes the farmer to milk the herd. Your teacher will tell you which of the storyboards to complete.

Student Notes

click here to open the **Ploughing** storyboard.

click here to open the **Milking** storyboard.

4. Share your results with the rest of the class. Discuss any differences you find. Check that you fully understand how to complete the task. If you don't, ask your teacher for help.

Plenary

5. What do you think the farmer could do to reduce the time taken to plough the fields?
6. What do you think the farmer could do to reduce the time needed to milk the herd?

Extension/Homework

7. Open and complete the **Parts of a Cow** storyboard.

   click here to open the **Parts of a Cow** storyboard.

8. After completing the image, estimate the size of each of the cow parts and list them in descending order, from largest to smallest, on Sheet 2.2a *Parts of a Cow*.

Sheet 2.2a

Parts of a Cow

Parts of a cow	Number from largest to smallest (1 = largest)
Hoof	
Head	
Udder	
Leg	
Back	
Tail	
Ear	
Mouth	
Nose	

Teacher Notes

Activity 3 Production

Overview of Activity

In this activity, students will select information displayed in a graph to solve questions about milk production on a dairy farm.

Group Organisation

Students work on their own for the introduction and development activities but move into groups of four for the plenary.

Suggested Timing

This should be completed in one lesson of 40 minutes to an hour.

Objectives

All students will: draw conclusions from a bar graph and use mental addition and multiplication.

Most students will: solve problems involving numbers and measures by choosing and carrying out appropriate calculations.

Some students will: collect, select and organise relevant data; draw conclusions and present results using ICT.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

- **Milk** storyboard

Key Words: calculate, dairy, scale, produce, milk

Activities

Introduction

1. Hold a discussion on the main animal products produced on farms and write a list on the board.
2. Inform students that they are going to look at milk production over one year on a typical dairy farm.

Development

3. Students open the **Milk** storyboard, which contains a bar graph showing the yearly milk production for a herd of cows. They are required to answer questions by interpreting the graphs. They also have to work out the best and worst months for milk production and suggest reasons for their findings.

Content of the Milk storyboard

First frame Title and instructions.

Second frame Bar graph of monthly milk production (litres) for 90 cows over one year.

The graph is for an Autumn Calving Herd which produces 87,000 litres per year. The monthly figures are: Jan. (10,000); Feb. (10,000); Mar. (10,000); Apr. (9,000); May (8,000); Jun. (8,000); Jul. (7,000); Aug. (1,000); Sep. (1,000); Oct. (7,000); Nov. (8,000); Dec. (8,000).

Subsequent frames Include the following questions (*answers for your reference only*):

a. What is the total yearly milk production for the herd?
(Answer: 87,000 litres)

b. Which are the best months for milk production?
(Answer: Jan., Feb. and Mar.)

c. Give reasons why you think this is the case.
(Answer: In an 'autumn herd' the cows produce their calves in Oct. Their milk production increases weekly and reaches its peak after a couple of months. It remains at this level for a few months.)

d. Which are the worst months for milk production?
(Answer: Aug. and Sep.)

e. Give reasons for this.
(Answer: During these months most cows are pregnant and are therefore dry. Production then drops off again from April to July and the process starts again.)

f. How much milk does one cow produce in one year (rounded off to a whole number)?
(Answer: 967 litres)

g. What is the average monthly milk production for a cow, remembering that for two months it produces little milk?
(Answer: 81 litres)

h. It costs the farmer 19 pence to produce every litre of milk. If the farmer receives 24 pence from the supermarket, how much profit would he/she make over one year?
(Answer: £4,350)

Plenary

4. In groups of four, students conduct a survey on one aspect of farming, for example, students' favourite animals, favourite crops, favourite produce, etc.
5. Students use a new Kar2ouche storyboard to present their results in the form of an appropriate graph.

Extension/ Homework

6. Students add questions to their storyboards about the results of their surveys and get other students to answer them.

Student Notes

Activity 3 Production

Objectives

In this activity you will:

- select information from a graph to solve questions about milk production on a dairy farm.

Outcomes

You will:

- complete a storyboard by interpreting information from a bar graph
- use the information to answer questions about yearly milk production on a farm
- conduct a survey and present your findings in a form that your class can understand.

Resources

To complete this activity you will need:

- the **Milk** storyboard.

Activities

Introduction

1. Discuss the main products from animals on a farm. Your teacher will write a list on the board.

Development

2. Open the **Milk** storyboard. This contains a bar graph showing the yearly milk production for a herd of cows. Answer the questions about the figures shown on the graph.

   click here to open the **Milk** storyboard.

Plenary

3. Conduct a survey on one aspect of the farm. Choose your own topic, for example, you could ask students in your class for their favourite farm animal, favourite crop, favourite farm machine, how many farms they have visited, etc.
4. Present your results in an appropriate form for your intended audience.

Extension/Homework

5. Add questions to your storyboard and ask other people in your class to answer them.

Unit 3: What's Right?

Curriculum Area: ICT and PSHE/Citizenship

Overview of Unit

In this unit students will consider the issue of animal welfare by comparing battery and free-range farming techniques.

Key Stage/Year

Key Stage 2/Years 3-6

Activities

The unit comprises two activities that form the backbone of a sequence of lessons to support ICT and PSHE/Citizenship. You may want to supplement or adapt these activities to meet the needs of your particular class.

1. **Farm Animals**
2. **Animal Welfare**

Assessment Opportunities

Assessment for Learning In Activity 1 students can compare their storyboards and discuss the reasons for their categorisation of the animals. There is some latitude in the definitions, but students might still want to make amendments following their discussions.

Assessment of Learning In Activity 1 you could formalise the discussions of animal needs and the role of humans, and assess these for speaking and listening. Likewise, the discussion of battery versus free-range could be assessed.

Outcomes

By the end of this unit, students will have:

- investigated the needs of pets, wild animals and farm livestock
- found out about issues involving animal welfare at home and on a farm
- learned about contrasting farming methods by looking at the issue of battery farming versus free-range farming techniques.

Curriculum References ICT

1 Finding things out

1a to talk about what information they need and how they can find and use it

1b how to prepare information for development using ICT, including selecting suitable sources, finding information, classifying it and checking it for accuracy

1c to interpret information, to check it is relevant and reasonable and to think about what might happen if there were any errors or omissions.

2 Developing ideas and making things happen

2a how to develop and refine ideas by bringing together, organising and reorganising text, tables, images and sounds as appropriate

2b how to create, test, improve and refine sequences of instructions to make things happen and to monitor events and respond to them.

3 Exchanging and sharing information

3a how to share and exchange information in a variety of forms, including email

3b to be sensitive to the needs of the audience and think carefully about the content and quality when communicating information.

4 Reviewing, modifying and evaluating work as it progresses

4a review what they and others have done to help them develop their ideas

4b describe and talk about the effectiveness of their work with ICT, comparing it with other methods and considering the effect it has on others

4c talk about how they could improve future work.

Curriculum References PSHE/Citizenship

Knowledge, Skills and Understanding

1 Developing confidence and responsibility and making the most of their abilities

1a to talk and write about their opinions, and explain their views, on issues that affect themselves and society

1c to face new challenges positively by collecting information, looking for help, making responsible choices, and taking action.

2 Preparing to play an active role as citizens

2a to research, discuss and debate topical issues, problems and events

2e to reflect on spiritual, moral, social and cultural issues, using imagination to understand other people's experiences

2f to resolve differences by looking at alternatives, making decisions and explaining choices

2j that resources can be allocated in different ways and that these economic choices affect individuals, communities and the sustainability of the environment.

4 Developing good relationships and respecting the differences between people

4a that their actions affect themselves and others, to care about other people's feelings and to try and see things from their point of view

4b to think about the lives of people living in other places and times, and people with different values and customs.

Breadth of Opportunities

5 During the key stage, students should be taught the knowledge, skills and understanding through opportunities

5a take responsibility for looking after the environment and animals properly

5d make real choices and decisions

5g consider social and moral dilemmas that they come across in life

5h find information and advice.

Teacher Notes

Activity 1 Farm Animals

Overview of Activity

In this activity, students will identify different categories of animals, before identifying their needs and who is responsible for their welfare.

Group Organisation

Start the activity with some class discussion, before students work through the activities by themselves or in pairs.

Suggested Timing

This activity should be completed in one lesson of 40 minutes to an hour.

Objectives

All students will: know that animals have needs just like humans, and that these needs include food, water, companionship and a suitable place to live; begin to appreciate the ways in which humans have a responsibility towards all animals – in particular farm animals.

Most students will: recognise that different animals have different needs and will appreciate that there are a large number of animal welfare issues; they will also contribute ideas and opinions to class discussion.

Some students will: appreciate that there are a large number of animal welfare issues and research one in some depth, understanding its complexity; they will also contribute ideas and opinions to class discussion.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

- **Livestock, Wild Animal or Pet?** storyboard
- **Animal Needs** storyboard
- **Parts of a Hen** storyboard

Key Words: wild, pet, farm, livestock

Activities

Introduction

1. Ask the students to thought shower the names of different animals and write their responses on the board. Divide the list into categories – livestock (or farm animals), wild animals and pets.
2. Hold a discussion on the differences between the three different categories.

3. Students open and complete the **Livestock, Wild Animal or Pet?** storyboard by putting the animals in the correct frame.

Content of the Livestock, Wild Animal or Pet? storyboard

First frame Title page and instructions.

Second frame Consists of a number of images of different animals.

Frames 3-5 Are headed 'Livestock', 'Wild Animals' and 'Pets'. Students drag the animal images to the correct fame. Students drag in a character or characters from the asset list into each of the headed frames to show who is responsible for looking after each group of animals.

4. Students share their storyboards with the class and explain why they chose particular characters.

Development

5. Students open and complete the **Animal Needs** storyboard by selecting the appropriate text boxes/images showing the needs of all animals.

Content of the Animal Needs storyboard

First frame Title frame with the following instructions – In the next frame you will see different words. Drag the words that you think describe the *needs* of animals into the third frame. Add text boxes and use them to explain the reasons for your choices.

Second frame Words in text boxes: air, entertainment, water, food, toys, shelter, exercise, protection, food treats, companions.

Third frame Empty frame with the heading 'Animal Needs'.

Plenary

6. Discuss the answers to the **Animal Needs** storyboard to establish what helps keep animals healthy. Ask students who looks after the animals in each category (livestock, wild animal or pet) when they are ill or injured. Consider what happens if no one looks after them. Tell the class that it is against the law to mistreat *any* animal.
7. Summarise for students the things that all animals *need*, like air, water, food and shelter. Some of the other listed items may be preferable but not essential. Different animals need different kinds of food and different kinds of places to live (see Unit 4). Encourage the class to think about how animal homes are similar to and different from our homes.

Extension/ Homework

8. Students open and complete the **Parts of a Hen** storyboard.

Content of the Parts of a Hen storyboard

Single frame Outline of a hen surrounded by the parts of the hen. Students are required to drag the parts to the correct place onto the hen outline.

9. Students use the internet to research laws on the mistreatment of animals.

Student Notes

Activity 1 Farm Animals

Objectives

In this activity you will:

- identify different categories of animals
- identify their needs and who is responsible for their welfare.

Outcomes

You will:

- create a storyboard categorising different sorts of animals and say who is responsible for looking after them
- complete a storyboard to investigate the needs of animals.

Resources

To complete this activity you will need:

- the **Livestock, Wild Animal or Pet?** storyboard
- the **Animal Needs** storyboard
- the **Parts of a Hen** storyboard

Activities

Introduction

1. Think of the names of different animals and share them with your class. Your teacher will write the names on the board.
2. With your class, decide which are livestock (farm animals), which are wild animals and which are pets.
3. Take part in a discussion on the differences between the different categories.
4. Open and complete the **Livestock, Wild Animal or Pet?** storyboard by putting the animals in the correct frames.

   click here to open the **Livestock, Wild Animal or Pet?** storyboard.
5. If asked, share your storyboard with the class and explain your choice of characters.

Development

6. Open and complete the **Animal Needs** storyboard. Think about the difference between 'essential' and 'preferable'.

Plenary

7. Discuss what helps keep animals healthy and who is responsible for looking after them when they are ill or injured. Think about what could happen if no one looks after them.

Student Notes

Extension/Homework

8. Open and complete the **Parts of a Hen** storyboard.

   click here to open the **Parts of a Hen** storyboard.

9. Use the internet or books to research laws on the mistreatment of animals.

Teacher Notes

Activity 2 Animal Welfare

Overview of Activity

In this activity students look at the issue of animal welfare by finding out some facts and figures about battery and free-range farming techniques, before deciding which method they would adopt on a farm and giving reasons for their decision.

Group Organisation

Mainly small-group work, with some class discussion.

Suggested Timing

This activity is likely to be completed in one to two sessions of around 40 minutes to one hour.

Objectives

All students will: know that animals have needs just like humans, and that these needs include food, water, companionship and a suitable place to live; they will also begin to appreciate the ways in which humans have a responsibility towards all animals – in particular farm animals.

Most students will: recognise that different animals have different needs and will appreciate that there are a large number of animal welfare issues; they will also contribute ideas and opinions to class discussion.

Some students will: appreciate that there are a large number of animal welfare issues, and research one in some depth, understanding its complexity; they will also contribute ideas and opinions to class discussion.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

- **Free-range** storyboard
- **Battery** storyboard
- **Map of the Farm** storyboard

- **Animal Welfare** (scaffold) storyboard
- **Plant Welfare** (scaffold) storyboard

Sheet 3.2a *Free-range*

Sheet 3.2b *Battery Farming*

Newspaper/media articles on intensive versus free-range farming

Key Words: free-range, battery, intensive, welfare, production, mistreatment

Activities

Introduction

1. If possible, provide students with different newspaper articles about intensive and free-range farming techniques. Alternatively, they could research using the internet. If this is not available or appropriate, ask students to open and watch the **Free-range** and **Battery** storyboards.

Content of the Free-range storyboard

First frame Title

Subsequent frames Include facts and information on different types of free-range hen/egg production. See Sheet 3.2a *Free-range* for the facts and information included.

Content of the Battery storyboard

First frame Title

Subsequent frames Include facts and information on different types of intensive hen/egg production. See Sheet 3.2b *Battery Farming* for the facts and information included.

2. Working in small groups, students identify the key points in their article(s) or the storyboards and share these with the class.

Development

3. Inform the students that they are going to take the role of a farmer who has decided to buy some hens to produce eggs to sell to supermarkets. Firstly, they have to decide whether to go for a free-range or battery-style production site. They should consider animal welfare as well as environmental and economic factors when making their decision.
4. Students explain their decision and write down four important animal welfare and environmental features that they would like on their site, for example, water.
5. Students open the **Map of the Farm** storyboard and decide where they would put their egg production site, thinking about animal welfare and the environment.

Content of the Map of the Farm storyboard

First frame Instruction in the composition window: In the next frame you will see an aerial view of a farm showing several fields and the farmhouse. You need to decide where you would put your hens and why. Use the aerial view of one of the hen houses from the props and place it in the appropriate position.

Frame 2 Aerial image of the farm.

Frame 3 Composition window – blank text box. Instruction in caption window – Write the reasons you chose this style of egg production in the text box above.

Frame 4 Composition window – blank text box. Instruction in caption window – In the text box above, write down the four main animal welfare and environmental features of your chosen type of egg production site.

Plenary

6. Ask a number of groups to show their storyboards to the rest of the class and hold a discussion on the advantages and disadvantages of both types of production from an animal welfare and environmental point of view.

Extension/ Homework

7. Using the **Animal Welfare** or **Plant Welfare** (scaffold) storyboards or starting from scratch with a new storyboard, ask students to produce a poster showing how they think farmers look after their animals or plants.

Content of the Animal Welfare storyboard

First frame Title and instructions.

Subsequent frames Step-by-step instructions for creating the poster.

Content of the Plant Welfare storyboard

First frame Title and instructions.

Subsequent frames Step-by-step instructions for creating the poster.

Student Notes

Activity 2 Animal Welfare

Objectives

In this activity you will:

- consider the issue of animal welfare by finding out some facts and figures about battery and free-range farming techniques
- decide which farming method you would adopt on a farm and give the reasons for your decision.

Outcomes

You will:

- complete a storyboard to show whether you would have a battery or free-range egg farm
- decide where and why you would locate the battery or free-range site on a farm
- produce a poster to show the ways that farmers look after their animals or plants.

Resources

To complete this activity you will need:

- the **Free-range** storyboard
- the **Battery** storyboard
- the **Map of the Farm** storyboard
- the **Animal Welfare** storyboard
- the **Plant Welfare** storyboard
- Sheet 3.2a *Free-range*
- Sheet 3.2b *Battery Farming*

Activities

Introduction

1. Read the newspaper or other articles about battery and intensive farming techniques or open and watch the **Free-range** and **Battery** storyboards.

   click here to open the **Free-range** storyboard.

   click here to open the **Battery** storyboard.

2. In your group, identify the important points in the article(s) or the storyboards and share these with the class.

Student Notes

Development

3. You are taking the role of a farmer who has decided to buy some hens to produce eggs to sell to supermarkets. Firstly, you need to decide whether to go for a free-range or battery-style production site.
4. Write down a reason for your decision and four important animal welfare and environmental features that you would like on your site, for example, water available nearby.
5. Open the **Map of the Farm** storyboard and design your perfect hen/egg production site on the map. Think in particular about animal welfare and environmental factors.

   click here to open the **Map of the Farm** storyboard.

Plenary

6. Show your storyboard to the class and discuss the advantages and disadvantages of free-range or battery egg production.

Extension/Homework

7. Using the **Animal Welfare** or **Plant Welfare** storyboard, or starting from scratch, produce a poster showing the ways that farmers look after their animals or plants.

   click here to open the **Animal Welfare** storyboard.

   click here to open the **Plant Welfare** storyboard.

   click here to open a **new** storyboard.

Sheet 3.2a

Free-range

Chickens are often housed in sheds with perches, or in deep-litter sheds, but have access to the outdoors during the day.

They can also be accommodated in movable houses. EU law states a maximum of 1,000 hens per hectare of outdoor space. This space must be 'mainly covered with vegetation'.

The young chickens arrive in the sheds at only a couple of days old.

In the sheds, the lighting is set to maximum daylight hours but is often dimmed to prevent too many fights and general aggression.

During the chickens' stay, the flooring of litter is not changed or cleaned.

After about 60 to 70 days, egg production reduces so the chickens are slaughtered.

Free-range farms go through about five to six batches of chickens per year.

This allows the litter to be cleared and the shed to be cleaned and fumigated between batches.

Free-range hens are more likely than battery birds to catch bird flu from wild birds. They are also more susceptible to attacks from wild animals.

Due to the cost of the buildings, the need for secure fencing and the farmer's increased workload, free-range eggs are more expensive to produce than battery-produced eggs.

Farmers can, however, charge more for free-range eggs.

Sheet 3.2b

Battery Farming

There are around 30,000,000 chickens in this country – 85% of these are 'living' in battery farms.

Of the above, 70% are kept in sheds often containing 20,000 chickens or more, with some containing up to 100,000.

The minimum legal requirement of space for one chicken is just under three-quarters the size of an A4 sheet of paper.

Many farms have four or five chickens per cage. The cages are approx. 20 inches x 20 inches (500 x 500 cm).

Stacks of cages usually extend from one end of the shed to the other, and are stacked up to six high.

With fortified foods and artificial 'sunrise and sunset', the average annual egg yield of one chicken is 338.

Over 2,000,000 chickens die in their cages each year from disease, usually caused by improper control of faeces clearing.

Chicken beaks are often cut off to stop them causing too much damage to each other.

Chickens spend 70 to 72 weeks in this condition before they are killed for pet food or even pies for us.

By then, most are suffering from brittle bones caused by lack of movement and standing on the wire bottoms of their cages.

Battery farming involves less work for the farmer.

This is the cheapest way of mass producing eggs.

Unit 4: Life Processes on the Farm

Curriculum Area: ICT and Science

Overview of Unit

In this unit students will explore how animals, plants and machines on the farm are similar and different. They go on to explore food production, the types of food that can come from farms in the UK and the required habitats and growing conditions. Students will use ICT to find things out, develop and communicate ideas, as well as review, evaluate and modify work.

Key Stage/Year

Key Stage 2/Years 3-6

Activities

The unit comprises five activities that form the backbone of a sequence of lessons to support ICT and Science. You may want to supplement or adapt these activities to meet the needs of your particular class.

1. **What Can Living Things Do?**
2. **Edible Plants**
3. **Farming a Diverse Industry**
4. **Habitats**
5. **Food Chains and Webs**

Assessment Opportunities

Assessment for Learning In Activity 1 you could combine pairs of students so that they can compare work and peer-assess. Alternatively, having been through a few examples on the board, students can look again at their work and suggest ways that it could be improved. Students can compare their **Types of Farming** storyboards, in Activity 3, in order to ensure that they have identified as many types of activity as possible. Having shared ideas they can return to, and improve, their own storyboards. The peer-evaluation sheet in Activity 3 allows students to suggest improvements to their Healthy Eating leaflets, before they are submitted for formal assessment. Students can be asked to describe their food webs and chains to each other and make a list of the resulting questions/ misunderstandings in Activity 5.

Assessment of Learning Students should keep a record of the answers they get right and wrong in Activity 2 and pass their scores to you so that you can assess their level of confidence when identifying which parts of a plant are edible. Students should submit their Healthy Eating leaflet in Activity 3 for assessment. In Activity 4 you can complete a model answer storyboard for what plants and animals need to survive, against which students can compare their own answers. The completed *Survival* sheet could be submitted for formal assessment.

Outcomes

By the end of this unit, students will have:

- created a storyboard to explain what distinguishes animals, plants and machines
- collected and identified the different edible parts of a plant
- researched healthy eating and produced a healthy eating guide promoting the work of farmers in the UK
- described the types of habitat to be found on typical farms
- described the habitat requirements of livestock/wildlife, arable crops/wild plants
- completed a Venn diagram showing their understanding of food webs and chains.

Curriculum References ICT

1 Finding things out

1a to talk about what information they need and how they can find and use it

1b how to prepare information for development using ICT, including selecting suitable sources, finding information, classifying it and checking it for accuracy

1c to interpret information, to check it is relevant and reasonable and to think about what might happen if there were any errors or omissions.

2 Developing ideas and making things happen

2a how to develop and refine ideas by bringing together, organising and reorganising text, tables, images and sounds as appropriate

2c to use simulations and explore models in order to answer 'What if ...?' questions, to investigate and evaluate the effect of changing values and to identify patterns and relationships.

3 Exchanging and sharing information

3a how to share and exchange information in a variety of forms, including email

3b to be sensitive to the needs of the audience and think carefully about the content and quality when communicating information.

4 Reviewing, modifying and evaluating work as it progresses

4a review what they and others have done to help them develop their ideas

4b describe and talk about the effectiveness of their work with ICT, comparing it with other methods and considering the effect it has on others

4c talk about how they could improve future work.

Curriculum References Science

Sc1 Scientific Enquiry

1 Ideas and evidence in science

1a science is about thinking creatively to try to explain how living and non-living things work, and to establish links between causes and effects.

2 Investigative skills – obtaining and presenting evidence

2h use a wide range of methods, including diagrams, drawings, tables, bar charts, line graphs and ICT, to communicate data in an appropriate and systematic manner.

2 Investigative skills – considering evidence and evaluating

2j use observations, measurements or other data to draw conclusions

2m review their work and the work of others and describe its significance and limitations.

Sc2 Life Processes and Living Things

1 Life processes

1a that life processes common to humans and other animals include nutrition, movement, growth and reproduction

1b that the life processes common to plants include growth, nutrition and reproduction

1c to make links between life processes in familiar animals and plants and the environments in which they are found.

2 Humans and other animals – nutrition

2b about the need for food for activity and growth, and about the importance of an adequate and varied diet for health.

3 Green plants – growth and nutrition

3a the effect of light, air, water and temperature on plant growth.

3 Green plants – reproduction

3d about the parts of the flower and their role in the life cycle of flowering plants, including pollination, seed formation, seed dispersal and germination.

5 Living things in their environment

5a about ways in which living things in the environment need protection.

5 Living things in their environment – adaptation

5b about the different plants and animals found in different habitats

5c how animals and plants in two different habitats are suited to their environment.

5 Living things in their environment – feeding relationships

5d to use food chains to show feeding relationships in a habitat

5e about how nearly all food chains start with a green plant.

Teacher Notes

Activity 1 What Can Living Things Do?

Overview of Activity

In this activity students will identify the similarities and differences between animals, plants and machines on the farm in terms of what they need and can do.

Group Organisation

The activity begins with a whole-class activity, followed by pair work. Students come together as a class for the plenary.

Suggested Timing

This activity is likely to be completed in one session of around 40 minutes to one hour.

Objectives

All students will: recognise that there are similarities and differences between animals, plants and machines.

Most students will: create a table of criteria to explain the similarities and differences between animals, plants and machines.

Some students will: understand that the life processes of animals include nutrition, movement, growth and reproduction, whilst plants cannot move and machines cannot reproduce or grow.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

- **Life Processes** storyboard

Key Words: life process, nutrition, movement, growth, reproduction

Activities

Introduction

1. Open the **Life Processes** storyboard on the whiteboard and look together at the title frame. Ask the class what they think the sheep, tractor and wheat have in common. If necessary, prompt the students by asking what they all need to function. Move the discussion on by asking if there are similarities in what they do.

Content of the Life Processes storyboard

First frame Title and images of a tractor, a sheep and some wheat.

Frame 2 Heading TRACTOR (MACHINE) and small image. Table that includes the following criteria with a column to add a tick or cross and another to add an explanation: feed, grow, reproduce, move, use energy, excrete, made from elements, have sensitivity. There are a couple of blank rows to add extra criteria if necessary.

Frame 3 Heading WHEAT (PLANT) and small image. Table that includes the following criteria with a column to add a tick or cross and another to add an explanation: feed, grow, reproduce, move, use energy, excrete, made from elements, have sensitivity. There are a couple of blank rows to add extra criteria if necessary.

Frame 4 Heading SHEEP (ANIMAL) and small image. Table that includes the following criteria with a column to add a tick or cross and another to add an explanation: feed, grow, reproduce, move, use energy, excrete, made from elements, have sensitivity. There are a couple of blank rows to add extra criteria if necessary.

Final frame Space for three sentences to define what makes each item distinct.

Development

2. In pairs, ask students to open the **Life Processes** storyboard on their shared machines and look in turns at the tractor, sheep and wheat in order to complete the table. There are blanks in the table so that students can insert additional criteria as appropriate.

Plenary

3. Bring the group back together to go through their answers on the whiteboard. Alternatively, put pairs together to compare their work first.

Extension/ Homework

4. Students could complete a collage of the sorts of animals, machines and plants that might be found on a farm, along with words and phrases the students associate with farming. This might be completed after a farm visit and include photographs of the trip. If students are using the internet for their research, explain how they should reference images they have used.

Student Notes

Activity 1 What Can Living Things Do?

Objectives

In this activity you will:

- compare different things you find on a farm in terms of what they need to function and what they can do.

Outcome

You will:

- create a storyboard to explain the similarities and differences between machines, plants and animals.

Resources

To complete this activity you will need:

- the **Life Processes** storyboard

Activities

Introduction

1. Look with your teacher at the title frame of the **Life Processes** storyboard. What do you think the sheep, tractor and wheat have in common? How are they different?

Development

2. Working with a partner, open the **Life Processes** storyboard. Look at the tractor, sheep and wheat and complete the table in each frame.

   click here to open the **Life Processes** storyboard.

3. If you want, you can add other criteria to the tables. For example, do all of the items respire?

Plenary

4. Compare your answers in small groups or as a class.

Extension/Homework

5. Make a collage of the sorts of animals, machines and plants you think can be found on a farm in the UK.

Teacher Notes

Activity 2 Edible Plants

Overview of Activity

In this activity students will explore how many plants provide energy through food for both people and animals and understand that the part of the plant that provides nutrition varies between plants.

Group Organisation

The activity begins with a brief whole-class explanation, before students work individually or in pairs.

Suggested Timing

This activity should be completed in one session of 40 minutes to one hour.

Objectives

All students will: recognise that plants provide food for animals, including people, and that different parts of the plant are edible.

Most students will: identify which parts of the most commonly consumed plants are edible.

Some students will: extend the list of given plants to identify which part of less common food plants is edible.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

- **Edible Plants** storyboard
- **Fruit or Root?** storyboard

Some examples of common food plants, for example, cabbage and carrot

Key Words: fruit, seed, flower, stem, root, leaf, edible

Activities

Introduction

1. Open the first part of the **Edible Plants** storyboard and ask students to identify the parts of a plant represented: fruit, flower, leaves, seeds, stem and roots. Ask for one example of each that they have eaten as they are being labelled. (Note: This part of the storyboard finishes at the end of the second group of frames.)

Content of the hyperlinked Edible Plants storyboard

First frame Title and instructions.

Second group of frames Image of generic plant for students to identify main parts: fruit, flower, leaf, seed, stem and root. If they get it right they move on, wrong and they get chance to try again.

Third group of frames Rhubarb and six labels (fruit, flower, leaf, seed, stem and root). Students have to select the correct part. If they get it right they move on, wrong and they get chance to try again.

Fourth group of frames Apple and six labels (fruit, flower, leaf, seed, stem and root). Students have to select the correct part. If they get it right they move on, wrong and they get chance to try again.

Fifth group of frames Beetroot and six labels (fruit, flower, leaf, seed, stem and root). Students have to select the correct part. If they get it right they move on, wrong and they get chance to try again.

Sixth group of frames Potato and six labels (fruit, flower, leaf, seed, stem and root). Students have to select the correct part. If they get it right they move on, wrong and they get chance to try again.

Seventh group of frames Spinach and six labels (fruit, flower, leaf, seed, stem and root). Students have to select the correct part. If they get it right they move on, wrong and they get chance to try again.

Eighth group of frames Celery and six labels (fruit, flower, leaf, seed, stem and root). Students have to select the correct part. If they get it right they move on, wrong and they get chance to try again.

Ninth group of frames Tomato and six labels (fruit, flower, leaf, seed, stem and root). Students have to select the correct part. If they get it right they move on, wrong and they get chance to try again.

Tenth group of frames Broccoli and six labels (fruit, flower, leaf, seed, stem and root). Students have to select the correct part. If they get it right they move on, wrong and they get chance to try again.

Eleventh group of frames Peanut and six labels (fruit, flower, leaf, seed, stem and root). Students have to select the correct part. If they get it right they move on, wrong and they get chance to try again.

2. Show students a cabbage and a carrot (or two similar food plants). Ask which parts of the plant these are. Discuss with the class how they might use the internet to find out if they weren't sure.

Development

3. Having looked at the examples, ask students to complete all of the **Edible Plants** storyboard, identifying the part of the plant that the fruit or vegetable comes from.

Plenary

4. Bring the class back together to compare and check answers.

Extension/ Homework

5. Students should find examples of more exotic or unusual fruits and vegetables and add images of these to the **Fruit or Root?** storyboard. If students are unable to find an image of the food they want within Kar2ouche, they can upload images from the web or take digital photographs. To add these to the storyboard, they should go to backgrounds and click on the folder at the bottom of the palette. From here they can navigate to where the image is filed.

Content of the Fruit or Root? storyboard

First frame Title and instructions.

Frame 2 Exemplar frame – image of ginger with caption, 'This is ginger. We eat it as a spice or flavouring in food. It is the **root** of the plant.'

Remaining frames Blank

Student Notes

Activity 2 Edible Plants

Objectives

In this activity you will:

- identify the different edible parts of plants
- name the parts of common plants that are edible
- research more unusual plants and say which bit is eaten.

Outcomes

You will:

- complete a storyboard identifying the parts of plants and which bits of common plants are edible
- create a storyboard describing which parts of more unusual fruits and vegetables are edible.

Resources

To complete this activity you will need:

- the **Edible Plants** storyboard
- the **Fruit or Root?** storyboard

Activities

Introduction

1. Open the first part of the **Edible Plants** storyboard and identify the parts of a plant. For each part, can you think of an example that you have eaten?

   click here to open the **Edible Plants** storyboard.

2. Which part of a cabbage do you eat? Which part of a carrot do you eat?

Development

3. Complete all of the **Edible Plants** storyboard by identifying which part of the fruit or vegetable is eaten.

   click here to open the **Edible Plants** storyboard.

Plenary

4. Compare your answers with others in your class.

Extension/Homework

5. Find examples of more exotic or unusual fruits and vegetables. Add images of these to the **Fruit or Root?** storyboard. You can either take a digital photograph or download images from the web.

   click here to open the **Fruit or Root?** storyboard.

Teacher Notes

Activity 3 Farming a Diverse Industry

Overview of Activity

In this activity students will think about the types of food that can come from farms in the UK and arrange these according to whether they are proteins, carbohydrates, fats/dairy, fruit/vegetables or sugars. Using what they can find out, students will create a healthy eating guide promoting the work of farmers in the UK.

Group Organisation

The lesson begins with the whole class thought showering the importance and diversity of farming activity. Students then work in pairs to look at the range of foods produced by farmers in the UK and how these contribute to a healthy diet.

Suggested Timing

This activity is likely to be completed in around two sessions of 40 minutes to one hour and could include a homework for additional research.

Objectives

All students will: use the internet to research the types of foods that come from UK farms and create a leaflet (using ICT to combine text and images) to review with peers.

Most students will: group the foods that can be found on UK farms into the main food groups and write a healthy eating guide promoting these foodstuffs.

Some students will: research and write a healthy eating guide aimed at promoting the food produced by UK farmers and talk with peers about how the work could be improved.

Resources

Kar2ouche *On The Farm: ICT Across the Curriculum*

- **Types of Farming** storyboard
- **Healthy Eating** storyboard
- **Good Food Leaflet** storyboard

- **Food Miles** storyboard

Sheet 4.3a *Peer Evaluation: Persuasive Text*

Access to the internet

Digital cameras/images of local farms (*optional*)

Key Words: protein, carbohydrate, fats, dairy, fruit, vegetables, sugars, healthy eating, diet, nutrition, arable, pastoral, organic, steward, food miles, seasonal, diversity

Activities

Introduction

1. With students, thought shower why they think farms are important. You could provide some headings on the board to prompt ideas: food production, leisure, non-food production, environment, services. As well as providing local, seasonal, fresh food, students may also come up with farmers being stewards of the countryside and having the responsibility to maintain footpaths, as well as providing jobs, reducing food miles and supplementing the national income through trade and tourism. If there is time, this could be the stimulus for a lesson on internet research.
2. Next, ask about the foods that students think come from UK farms. You might like to jot these on the whiteboard or a flip-chart. Ask members of the class what they last ate that didn't come from a UK farm. This is likely to be exotic or out-of-season produce, processed food or seafood. Remind students that even processed food is likely to contain at least some ingredients from a farm.
3. Discuss the sorts of typical farm that can be found in the UK, for example, arable, livestock/pastoral, single production/intensive, dairy, poultry, mixed, organic.

4. Ask students to complete the **Types of Farming** storyboard. This asks them to identify the type of farming or farming activity shown in the image or to create a picture to show the type of farming or farming activity labelled in the caption window. The final two frames could contain digital photographs of local farms or farms the students have visited.

Content of the Types of Farming storyboard

First frame Title and instructions to add missing image and/or caption.
Frame 2 Image of cows

Frame 3 Image of rape seed

Frame 3 Caption – Farmer's market

Frame 4 Caption – Footpath – stewards of the countryside

Frame 5 Caption – Timber

Frame 6 Image of farmhouse, Bed and Breakfast

Frames 7 and 8 Blank for students to add own digital images and captions.

Development

5. Having looked at the diversity of farming activity, ask students to work in pairs to show how UK farm produce contributes to a healthy diet. Remind students that the main food groups comprise: proteins, carbohydrates, fats and dairy, fruits and vegetables, sugars. Complete the **Healthy Eating** storyboard to explore the types of foods that belong to each group.

Content of the Healthy Eating storyboard

First frame Title and image showing main food groups.

Frame 2 Proteins: students select props to show what proteins can be found on UK farms and write a description/notes in the caption window.

Frame 3 Carbohydrates: students select props to show what carbohydrates can be found on UK farms and write a description/notes in the caption window.

Frame 4 Fats and dairy: students select props to show what fats and dairy products can be found on UK farms and write a description/notes in the caption window.

Frame 5 Fruits and vegetables: students select props to show what fruits and vegetables can be found on UK farms and write a description/notes in the caption window.

Frame 6 Sugars: students select props to show what sugars can be found on UK farms and write a description/notes in the caption window.

6. Ask students to add to what they have found out about healthy eating and UK farms through completing the **Healthy Eating** storyboard by researching using the internet. Talk about using key words to search and acknowledging sources of information. Also talk about how to assess which sites are most reliable and why. Students can add their additional notes to the caption windows, including how much of each food group should be eaten each day.

7. Using all of their research, ask students to complete the **Good Food Leaflet** storyboard. Explain that the purpose is to promote the work of farmers in the UK and persuade readers to buy local, seasonal produce.

Content of the Good Food Leaflet storyboard

First frame Title and instructions.

Subsequent frames Step-by-step instructions for creating leaflet.

Plenary

8. Ask students to email a partner a copy of their storyboard. This means the student can keep the original, but that their partner can make suggestions on a copy. They should rename the storyboard to show that it has been edited.

9. Ask students to work in pairs to evaluate each other's work. Students could use Sheet 4.3a *Peer Evaluation: Persuasive Text* if necessary. Make changes based on recommendations and submit for assessment.

Extension/ Homework

10. Students could keep a food log for a week showing what they have eaten and where it has come from. This could be logged on the **Food Miles** storyboard. Discuss what 'food mile' means, that is, distance travelled from field to fork. Talk about why this might be good or bad.

Content of the Food Miles storyboard

First frame Title and instructions.

Frame 2 Map of UK. Instructions to add chicken to Norfolk, potatoes to Cheshire, apples to Worcestershire, and then work out roughly how many food miles each would have to travel to be eaten by them.

Frame 3 Map of UK. Instructions to add examples of food they have eaten in the last week with approximate food miles.

Frame 4 Map of world. Instructions to add bananas to Jamaica, grapes to Italy, tomatoes to Spain, and then work out roughly how many food miles each would have to travel to be eaten by them.

Frame 5 Map of world. Instructions to add examples of food they have eaten in the last week with approximate food miles.

Student Notes

Activity 3 Farming a Diverse Industry

Objectives

In this activity you will:

- explore why farming in the UK is important
- discuss the diversity of farming activities
- research healthy eating and local produce
- practise writing persuasively.

Outcomes

You will:

- create a storyboard describing some of the types of farming activity that can be found on UK farms
- show how food from UK farms contributes to the different food groups
- produce a leaflet promoting food from UK farms and healthy eating.

Resources

To complete this activity you will need:

- the **Types of Farming** storyboard
- the **Healthy Eating** storyboard
- the **Good Food Leaflet** storyboard
- the **Food Miles** storyboard
- Sheet 4.3a *Peer Evaluation: Persuasive Text*

Activities

Introduction

1. Why are farms important? What happens on farms in your area?
2. What foods come from UK farms? What did you last eat that didn't come from a farm in the UK?
3. What different sorts of farm are there? What different sorts of activity take place on farms or farmland?
4. Follow the instructions and complete the **Types of Farming** storyboard.

   click here to open the **Types of Farming** storyboard.

Student Notes

Development

5. How do you think UK farm produce contributes to a healthy diet? Show your answers in the **Healthy Eating** storyboard.

   to open the **Healthy Eating** storyboard.

6. Find out more about healthy eating and UK farm produce by looking on the internet. In particular, see if you can find out how much you should eat of each food group daily. Add notes in the caption windows of your **Healthy Eating** storyboard.
7. Using all of your research, complete the **Good Food Leaflet** storyboard. In this, your job is to promote the work of UK farmers and persuade readers to buy local, seasonal produce.

   to open the **Good Food Leaflet** storyboard.

Plenary

8. Work in pairs to evaluate each other's work. You can use Sheet 4.3a *Peer Evaluation: Persuasive Text* if necessary. Make changes to your leaflet based on the comments made.

Extension/Homework

9. Keep a food log for a week showing what you have eaten, how much and where it has come from. You can use the **Food Miles** storyboard to record your answers.

   to open the **Food Miles** storyboard.

Sheet 4.3a

Peer Evaluation: Persuasive Text

Read a partner's leaflet and make comments on both what is good and how it might be improved. Use the following checklist to help structure what you are going to say.

Content

- description of food groups and types of produce in each ❑
- recommended daily intake ❑
- reasons to buy locally and seasonally ❑

Style

- addresses reader directly – personal pronouns ❑
- powerful adjectives and adverbs ❑
- repetition for emphasis ❑
- opinions disguised as facts ❑
- exaggeration ❑
- use of figures, percentages, quotations and scientific language ❑
- rhetorical questions ❑
- emotive language ❑
- imperative nouns ❑
- call to action ❑

Accuracy

- spelling ❑
- punctuation ❑
- information ❑

Format

- attractive layout ❑
- good use of images to illustrate points ❑
- appropriate choice of font, colour and size ❑

Best points (Ticks)
1
2
Point for improvement (Wishes)

Teacher Notes

Activity 4 Habitats

Overview of Activity

In this activity students explore different kinds of farm landscape, wild and managed, and investigate the habitats they provide for different plant and animal life.

Group Organisation

The activity begins with individual work where students are asked to use their powers of deduction to describe the features of a farming landscape. This develops into a class discussion, before the class is divided into two groups of pairs to investigate one of two topics. Pairs join together to share what they have found out. There is then a brief class activity to model what is required, before students once again work alone. Best examples of work are finally shared.

Suggested Timing

This activity is likely to be completed in two or three sessions of 40 minutes to one hour. It could take longer if a visit to a local farm was arranged in order for students to take digital photographs.

Objectives

All students will: talk about the information they need and how they might find it and combine text and images to create useful notes about living things in their environments.

Most students will: select suitable sources for researching habitats and adaptation and make a judgement about accuracy and suitability for purpose.

Some students will: interpret and select relevant information for a presentation and talk with peers about how the work could be improved.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

- **Farming Landscapes** storyboard

- **A: What do Plants Need to Survive?** and **B: What do Animals Need to Survive?** storyboards
- **Adaptation** storyboard

Sheet 4.4a *Survival*

Access to the internet

Access to a local farm, farmer and/or farming association (*optional*)

Key Words: geology, topography, climate, habitat, adaptation

Activities

Introduction

1. Explain that farms comprise a number of different types of landscape. Ask students to open the **Farming Landscapes** storyboard and to describe each landscape in the caption window. In particular, ask them to note the man-made or human-influenced features, natural and created habitats, and what resources might be produced/farmed. Those who can should give reasons for their ideas. There are blanks at the end of the storyboard so that students who have access to digital images of local farm landscapes can add these.

Content of the Farming Landscapes storyboard

First frame Title and instructions.

Frame 2 Image of gently rolling field with distinct boundaries and crop growing.

Frame 3 Image of lush green field with cows.

Frame 4 Image of yard and barns.

Frame 5 Image of pond.

Frame 6 Image of woodland.

Frame 7 Image of hedgerow and wild flower meadow.

Frame 8 Image of farmhouse and orchard.

Frame 9 Image of tree in middle of field.

Frames 10-12 Blank for students to insert own digital images if available.

2. Explain that farmers are responsible for looking after the land and that:
   - different types of land use provide habitats for many different types of wildlife

- different conditions, in terms of geology (type of soil), topography (shape of land) and climate, support different types of farming.

Begin to discuss why this might be the case.

Development

3. Divide the class into two groups of pairs. One group (A) is going to look at the conditions necessary for arable crops and wild flowers; the other group (B) will be investigating the habitats of livestock and wild animals. They will share what they have found at the end.

4. Students begin by using books and the internet to provide information necessary to complete either storyboard **A: What do Plants Need to Survive?** or **B: What do Animals Need to Survive?**

Content of the A: What do Plants Need to Survive? storyboard

First frame Title

Frame 2 Image of a 'happy' plant showing cross section of roots in earth with a layer of compost, shower, sun and rainbow.

Frame 3 Image of roots in earth and compost with instruction to say what this suggests about a plant's needs.

Frame 4 Image of raindrops falling on earth with instruction to say what this suggests about a plant's needs.

Frame 5 Image of sun shining on leaves.

Final frame Complete the sentence 'A plant needs ...'

Content of the B: What do Animals Need to Survive? storyboard

First frame Title

Frame 2 Image of a fox and cubs outside a hole, a field beyond with a rabbit in the undergrowth and a pond close by.

Frame 3 Image of hole with instruction to say what this suggests about an animal's needs.

Frame 4 Image of field with instruction to say what this suggests about an animal's needs.

Frame 5 Image of rabbit with instruction to say what this suggests about an animal's needs.

Frame 6 Image of pond with instruction to say what this suggests about an animal's needs.

Final frame Complete the sentence 'Animals need ...'

5. Put pairs of As and Bs together and ask them to share both their work and thinking. New ideas can also be recorded.

6. Bring the class back together and explain that these storyboards provide a simple picture of what plants and animals need, but that many plants and animals are adapted to different conditions. Ask students to open the **Adaptation** storyboard and complete frames 2 and 3 together. Prompt them to think about an animal's need for food, water, shelter/warmth and space; and a plant's need for nutrients, anchorage for roots, water, sun/warmth, and how features of each organism contribute to its survival.

Content of the Adaptation storyboard

First frame Title and instructions.

Frame 2 Image of Highland cattle with snowy mountain backdrop.

Frame 3 Image of Alpine plant in a rocky crevice.

Frames 4-7 Blank

7. The remaining frames are blank for students to create their own images using existing assets in the software or pictures downloaded from the Web. In each one they should create the image and explain how the plant or animal is adapted to the conditions. Students could import their own digital photographs too.
8. As an extension, students could complete Sheet 4.4a *Survival*.

Plenary

9. Share some of the better adaptation slides with the class, talking about how the particular plants and animals are adapted to their surroundings.
10. Remind students that:
    - there are different kinds of animals and plants (wild and farmed) in the local environment
    - there are differences between local environments in terms of geology, topography and climate
    - differences affect which animals and plants thrive.

Extension/ Homework

11. Students could research the local area and produce a report exploring the prevalent types of farms, crops and livestock as influenced by geology, topography and climate.
12. If possible, they could create a questionnaire and send it to the local branch of the National Farmers' Union, a Young Farmers group or a friendly local farmer.

13. A good example of how location and landscape affect farming can be found on the North York Moors National Park website:
    www.visitnorthyorkshiremoors.co.uk/content.php?nID=496
    Another good site to start with is the National Parks site generally. From here browsers can select an area and then use the search facility to find out about farming in the area:
    www.nationalparks.gov.uk/
    Some of the National Parks' sites are better than others for this purpose, so check the one nearest to you.

Student Notes

Activity 4 Habitats

Objectives

In this activity you will:

- explore farming landscapes
- find out what animals and plants need to survive
- look at how animals and plants are adapted to particular habitats.

Outcomes

You will:

- create a storyboard describing farming landscapes
- describe what plants/animals need to survive
- explain how a range of organisms are adapted to their environments.

Resources

To complete this activity you will need:

- the **Farming Landscapes** storyboard
- the **A: What do Plants Need to Survive?** or **B: What do Animals Need to Survive?** storyboard
- the **Adaptation** storyboard
- Sheet 4.4a *Survival*

Activities

Introduction

1. Most farms are made up of different types of landscape. Open the **Farming Landscapes** storyboard and describe each landscape in the caption window. In particular:
   - describe where a feature is man-made or human-influenced
   - say whether the habitats shown are natural or created and what makes you think this
   - list what resources might be produced/farmed.

   There are blanks at the end of the storyboard so that you can add digital images of local farm landscapes if you have any.

   click here to open the **Farming Landscapes** storyboard.
2. Farmers look after the land, and different types of land use provide habitats for many different types of wildlife. In addition, the type of framing will be influenced by the type of soil, the shape of the land and the climate. Why do you think this is?

Student Notes

Development

3. Your teacher will ask you to work in a pair on either plants or animals. Use the internet and books to find the information that will let you complete either the **A: What do Plants Need to Survive?** storyboard or **B: What do Animals Need to Survive?** storyboard.

   click here to open the **A: What do Plants Need to Survive?** storyboard.

   click here to open the **B: What do Animals Need to Survive?** storyboard.

4. Work with a pair who completed a different storyboard and share your work with them. Add any new ideas they may have to your storyboard.
5. Your storyboards provide a simple picture of what plants and animals need, but many plants and animals are adapted to different conditions. Open the **Adaptation** storyboard. You might complete frames 2 and 3 together. Think about an animal's need for food, water, shelter/warmth and space; and a plant's need for nutrients, anchorage for roots, water, sun/warmth, and how features of each organism contribute to its survival.

   click here to open the **Adaptation** storyboard.

6. The final frames are blank for you to create your own images. You can use the backgrounds, characters and props in Kar2ouche. You could also use images from the internet and/or your own digital photos.
7. Complete Sheet 4.4a *Survival.*

Plenary

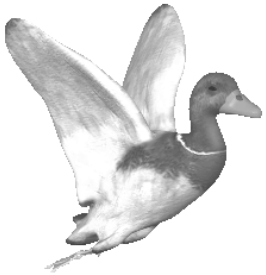
8. Talk with others about how the particular plants and animals you have chosen are adapted to their surroundings.
9. Remember that:
   - you can find different kinds of animals and plants (wild and farmed) on farms
   - environments differ according to where they are in terms of soil, land shape and climate
   - the differences between environments affect which animals and plants can survive there.

Extension/Homework

10. Research your local area and produce a report exploring the main types of farms, crops and livestock you can find. Try to relate this to the shape of the land, the quality of the soil and the climate.
11. If possible, create a questionnaire and send it to someone at the local branch of the National Farmers' Union, a Young Farmers group or a friendly local farmer. Use the answers to help you write your report.

Sheet 4.4a

Survival



Look at the example and then complete the table for living things that you might find or have observed on a farm in the UK.

Living Thing	Habitat	Need(s)	Adaptation
Example Duck	Pond	Food – weed Ability to swim	Bill like a scoop Webbed feet

Teacher Notes

Activity 5 Food Chains and Webs

Overview of Activity

In this activity students will explore how living things on the farm are interrelated and represent this relationship through food chains and webs.

Group Organisation

The activity begins with a class discussion to revisit previous learning and to introduce food chains and webs. Students can then work either alone or in pairs, before coming back together to show what they have created.

Suggested Timing

This activity should be completed in one session of 40 minutes to an hour.

Objectives

All students will: recognise the interrelatedness of living things.

Most students will: be able to complete a food chain and recognise that most begin with a green plant.

Some students will: create food chains and webs for living things on UK farms and begin to understand the complexity of interrelationships in sustainable farming practices.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

- **Venn Diagram** storyboard
- **Food Chain** storyboard
- **Food Web** storyboard

Sheet 4.5a *Producers and Consumers*

Key Words: producer, consumer, predator, prey, food chain, food web, interrelated, sustainability, balance, ecosystem

Activities

Introduction

1. Explain that, like all other animals, our bodies need energy to live and grow, and this energy comes from food. Thought shower the types of food that come from UK farms. Alternatively, ask pairs of students to try to remember what food they have eaten in the last two or three days and how much of this was, or could have been, sourced from a UK farm.

2. Ask students to come up with ways of classifying this food, for example: meat or vegetable; direct from farm or processed; organic or non-organic. They may find other classifications. Students could record their answers using the templates in the **Venn Diagram** storyboard.

Content of the Venn Diagram storyboard

First frame Title and explanation.

Frame 2 Two intersecting circles with blank boxes for labels.

Frame 3 Three intersecting circles with blank boxes for labels.

3. In the previous activity, students looked at what plants and animals need to survive. Explain that in this activity they will explore how plants and animals relate in terms of food chains and webs.

Development

4. Students will know that the vegetables and cereals that we eat need sunlight, water and soil to grow, but ask them what cattle and poultry need in order to develop enough to produce meat. Open the **Food Chain** storyboard to illustrate how all chains begin with a plant and how elements in the chain are either producers or consumers (predators or prey). Define each for students. Students can complete the storyboard to demonstrate that they've grasped the concept.

Content of the Food Chain storyboard

First frame Title and instructions.

Frame 2 Image of grass with arrow to image of bullock with arrow to image of human tucking into roast beef.

Frame 3 Students are asked to put the following into order in the food chain: mouse, owl, wheat. Question in the caption window: Why might farmers be pleased to see an owl on their land?

Frame 4 Students are asked to put the following into order in the food chain: caterpillar, cabbage, blackbird. Question in the caption window: Why might farmers be pleased to see a blackbird on their land?

Frame 5 Students are asked to put the following into order in the food chain: human, lacewing, broadbean, blackfly, cattle.

Frames 6-9 Images of hedgerow, arable field, pond and tree in pasture with instruction to create an appropriate food chain for each habitat.

5. Those who grasp this concept can continue by opening the **Food Web** storyboard that shows how different chains are linked. The final link in this food chain is people. Students could add further frames to illustrate some of the food webs they have observed or read about on a particular farm.

Content of the Food Web storyboard

First frame Title and instructions.

Frame 2 Students are asked to move items around and add the arrows showing the interrelationships between the following: grass, chicken, snail, sheep, wheat, bullock, peas, human.

Frame 3 Blank with arrows for students to create own food chain.

Plenary

6. Students should share some of the food chains and webs that they have created and discuss the food chains that describe some of the things that they've eaten in the last few days.
7. Talk about what would happen if one of the living things disappeared from the food chain/web and the importance of balance in sustainable farming and ecosystems.

Extension/ Homework

8. To consolidate learning, students could complete Sheet 4.5a *Producers and Consumers*.

Student Notes

Activity 5 Food Chains and Webs

Objectives

In this activity you will:

- learn about food chains and food webs
- think about how important living things are to each other on a farm.

Outcomes

You will:

- complete storyboards showing that you understand food chains and webs
- complete a sheet to show what you have learned.

Resources

To complete this activity you will need:

- the **Venn Diagram** storyboard
- the **Food Chain** storyboard
- the **Food Web** storyboard
- Sheet 4.5a *Producers and Consumers*

Activities

Introduction

1. All animals need energy to live and grow. This energy comes from food. What food that you eat comes from UK farms? What food have you eaten in the last two or three days? How much of this was, or could have been, from a UK farm?
2. How would you organise your lists of food into groups? Record your answers using the templates in the **Venn Diagram** storyboard.

   click here to open the **Venn Diagram** storyboard.
3. Now you're going to look at how all living things on a farm relate in some way to each other.

Development

4. What do animals kept for meat need in order to grow? Open and complete the **Food Chain** storyboard.

   click here to open the **Food Chain** storyboard.
5. Sometimes the picture is more complicated than this and is better represented as a web rather than a simple chain. Open and complete the **Food Web** storyboard. You can add extra frames at the end to show what you have observed on a farm or found out from research.

   click here to open the **Food Web** storyboard.

Student Notes

Plenary

6. Share some of the food chains and webs that you have created.
7. What do you think would happen if one of the living things disappeared from the food chain/web?

Extension/Homework

8. Show what you know by filling in Sheet 4.5a *Producers and Consumers*.

Sheet 4.5a

Producers and Consumers

Make a list of the living things that you might find on a UK farm.

Farmed	
Plants	**Animals**

Wildlife		
Plants	**Animals that eat plants (Herbivores)**	**Animals that eat other animals (Carnivores)**

Fill in this table using the names of these living things.

Producers	**Consumers that eat producers (Prey*)**	**Consumers that eat consumers (Predators)**

*If eaten by a predator.

Where do producers come in each chain? Why?

Unit 5: Land Use

Curriculum Area: ICT and Geography

Overview of Unit

In this unit students will compare land use on different farms and consider environmental issues. They will investigate the types of goods that farms produce and how farms have diversified in recent years. Lastly, students will look at how goods get from the farm to our tables and the impact of this on global issues.

Key Stage/Year

Key Stage 2/Years 3-6

Activities

The unit comprises three activities that form the backbone of a sequence of lessons to support ICT and Geography. You may want to supplement or adapt these activities to meet the needs of your particular class.

1. **Land Use on Worton Farm**
2. **Crops or Animals**
3. **Global Footprint**

Assessment Opportunities

Assessment for Learning In Activity 1 students compare their descriptions of land use and, in discussing what they have found, identify omissions and develop appropriate use of language.

Assessment of Learning Students' storyboards in Activities 2 and 3 can be submitted for teacher assessment.

Outcomes

By the end of this unit, students will have:

- compared land use and environmental issues on different farms
- understood that farms produce different goods and how some of these get onto our tables
- grasped that movement of food produce has an impact on the environment.

Curriculum References ICT

1 Finding things out

1a to talk about what information they need and how they can find and use it

1b how to prepare information for development using ICT, including selecting suitable sources, finding information, classifying it and checking it for accuracy

1c to interpret information, to check it is relevant and reasonable and to think about what might happen if there were any errors or omissions.

2 Developing ideas and making things happen

2a how to develop and refine ideas by bringing together, organising and reorganising text, tables, images and sounds as appropriate

2b how to create, test, improve and refine sequences of instructions to make things happen and to monitor events and respond to them.

3 Exchanging and sharing information

3a how to share and exchange information in a variety of forms, including email

3b to be sensitive to the needs of the audience and think carefully about the content and quality when communicating information.

4 Reviewing, modifying and evaluating work as it progresses

4a review what they and others have done to help them develop their ideas

4b describe and talk about the effectiveness of their work with ICT, comparing it with other methods and considering the effect it has on others

4c talk about how they could improve future work.

Curriculum References Geography

Geographical Skills/Places: Use map and plans to consider and compare land use

1 Undertaking geographical enquiry

1a ask geographical questions

1b collect and record evidence and skills

1c analyse evidence and draw conclusions

1d identify and explain different views that people, including themselves, hold about topical geographical issues

1e communicate in ways appropriate to the task and audience.

2 Developing geographical skills
- **2a** to use appropriate geographical vocabulary
- **2c** to use maps and plans at a range of scales
- **2d** to use secondary sources of information, including maps and photographs
- **2e** to draw plans and maps at a range of scales
- **2g** decision-making skills.

3 Knowledge and understanding of places
- **3a** to identify and describe what places are like
- **3d** to explain why places are like they are.

5 Knowledge and understanding of environmental change and sustainable development
- **5a** recognise how people can improve the environment and how decisions about places and environments affect the future quality of people's lives
- **5b** recognise how and why people may seek to manage environments sustainably, and to identify opportunities for their own involvement.

Breadth of Study

6 Theme 6e an environmental issue, caused by change in the environment and attempts to manage the environment sustainably.

Teacher Notes

Activity 1 Land Use on Worton Farm

Overview of Activity

In this activity, students compare land use on two farms and discuss how they are similar and different. They also look at the environmental features of each farm.

Group Organisation

Students work mainly individually but there is some paired work during the plenary part of the activity.

Suggested Timing

This activity should be completed in one lesson of 40 minutes to an hour.

Objectives

All students will: describe the main physical and human features of the two farms and point out similarities and differences between them.

Most students will: recognise how people can improve or damage the environment and describe examples from each farm.

Some students will: recognise how people seek to manage their environment by studying environmental issues in their local town.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

- **Map of the Farm** storyboard

A visit to a local farm (*optional*)

Key Words: land use, locality, primary, secondary, tertiary, margins, environmental, diversification, consumer, global footprint

Activities

Introduction

1. Students open and look at the **Map of the Farm** storyboard.

Content of the Map of the Farm storyboard

First frame Title

Subsequent frames Aerial views of the farm with a key showing different land use.

Development

2. Using the internet, students find land use information about another farm. They compare the land use of Worton with this farm and explain how and why the two farms are similar and different. Alternatively, they could visit another farm and take pictures, then upload the Google satellite map for the farm.

3. Using the **Map of the Farm** storyboard, students use a key to mark hedges, trees, field margins, pond areas, etc. Ask the class to complete the storyboard by stating how environmentally friendly they consider the farm to be.

Plenary

4. In pairs, students review and explain the main similarities and differences between their own locality and the farm.

Extension/ Homework

5. Students can use Kar2ouche to produce a poster showing either the ways in which the farm is environmentally friendly or the environmental aspects of the area they live in.

Student Notes

Activity 1 Land Use on Worton Farm

Objectives

In this activity you will:

- compare land use on two farms and show how they are different
- look at the environmental features of each farm.

Outcomes

You will:

- understand that there are different types of land use on farms
- identify environmentally friendly features
- produce an environmental poster.

Resources

To complete this activity you will need:

- the **Map of the Farm** storyboard

Activities

Introduction

1. Open and look at the **Map of the Farm** storyboard and then use a key to show different land use on the farm.

   click here to open the **Map of the Farm** storyboard.

Development

2. Using the internet, find information about the land use on a different farm. Compare the land use of Worton with this farm and explain how and why the two farms are different as well as how they are similar.
3. Reopen the **Map of the Farm** storyboard and use a key to mark hedges, trees, field margins, pond areas, etc. Complete the storyboard by stating how environmentally friendly you think the farm is. Save your work.

   click here to open the **Map of the Farm** storyboard.

Plenary

4. With a partner, explain the main similarities and differences between the area you live in and the farm.

Extension/Homework

5. Produce a poster showing either the ways in which the farm is environmentally friendly or the environmental aspects of the area you live in.

Teacher Notes

Activity 2 Crops or Animals

Overview of Activity

In this activity students investigate the types of goods that farms produce, how and why farms have diversified and the type of goods or services students would produce if they had access to a field.

Group Organisation

Start with a group discussion, before asking students to complete the activities as individuals or in pairs.

Suggested Timing

This activity should be completed in two to three lessons of 40 minutes to an hour.

Objectives

All students will: investigate the different ways that farmers use their land.

Most students will: recognise and describe how farmers take different approaches to land use.

Some students will: understand the difference between the terms primary, secondary and tertiary when referring to economic activity.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

- **Animals** storyboard
- **Crops** storyboard

Farm visit (*optional*)

Key Words: land use, locality, goods, commodities, primary, secondary, tertiary, margins, environmental, diversification, consumer, global footprint

Activities

Introduction

1. Ask the students to thought shower the things that farmers use their land for in order to produce different goods or commodities. Write a list on the board.
2. Introduce the terms 'primary' (take it), 'secondary' (make it) and 'tertiary' (sell it), when referring to the economic activity stimulated by the farm. Label the list on the board with the appropriate term and, if required, add other products to the list to ensure that the terms primary, secondary and tertiary are used at least once.

Development

3. Students open either the **Animals** or the **Crops** storyboard. Ask the students to complete the table by matching the farm products with the goods they will be turned into. For more information, students can listen to the Primary, Secondary or Tertiary audio by clicking on the blue text/audio tab. They need to scroll down to Unit 5 Activity 2 and click on the red arrow, followed by the loudspeaker icon.

Content of the Animals storyboard

First frame Title frame.

Frames 2-6 Images of farm animals in the composition windows. Instructions in caption window – Write the name of any goods that can be produced from the animal above in the text boxes. Add more text boxes and arrows if you wish. Drag images that illustrate your answers from the props window into this frame.

Animals included: goat, chicken, cow, pig and sheep.

Content of the Crops storyboard

First frame Title frame.

Frames 2-6 Images or backgrounds of different crops in the composition windows. Instructions in caption window – Write the name of any goods that can be produced from the crop above in the text boxes. Add more text boxes and arrows if you wish. Drag images that illustrate your answers from the props window into this frame.

Crops included: wheat, rape seed, grass, barley, maize.

4. Discuss with the class where they might purchase these items.

Plenary

5. Explain to the students that farmers are under increasing pressure to turn to other less traditional methods of using their land to make a living, for example, converting pasture into a golf course or barns into offices. Inform the students that this is called diversification.
6. Students investigate one example of diversification at a local farm or make a list of typical farm diversifications using the internet or other suitable resources.

Extension/ Homework

7. Put the students in small groups and inform them that they have been put in charge of a field on a farm local to their school. Tell them to decide how they would use this field to earn the farmer a profit. They could use a Kar2ouche storyboard to illustrate their ideas or produce a leaflet to advertise their products to the rest of the class.

Student Notes

Activity 2 Crops or Animals

Objectives

In this activity you will:

- investigate the types of goods that farms produce
- consider how and why farms have diversified
- decide on the type of goods or services you would produce.

Outcomes

You will:

- complete a storyboard matching farm products and the goods that are made from them
- investigate one example of diversification at a local farm
- decide on the type of goods you would produce for your class.

Resources

To complete this activity you will need:

- the **Animals** storyboard
- the **Crops** storyboard

Activities

Introduction

1. Thought shower the things that farmers use their land for in order to produce different goods or commodities. Your teacher will write a list on the board.
2. Your teacher will introduce the terms 'primary' (take it), 'secondary' (make it) and 'tertiary' (sell it). Help the teacher to label the list on the board with the appropriate term.

Development

3. Open either the **Animals** or the **Crops** storyboard and complete the table by matching the farm products with the goods they will be turned into. Your teacher will tell you which storyboard to open.

   click here to open the **Animals** storyboard.

   click here to open the **Crops** storyboard.
4. Discuss with the class where you might be able to buy these items.

Plenary

5. Your teacher will explain that farmers are turning to other methods of using their land to make a living. This is called diversification.
6. Carry out an investigation into one example of diversification at a local farm or make a list of typical farm diversifications using the internet or other suitable resources.

Student Notes

Extension/Homework

7. You have been put in charge of a field on a farm local to your school. Decide how you would use the land to produce a profit. Use a Kar2ouche storyboard to illustrate your ideas or produce a leaflet to advertise your land use to the rest of the class.

   click here to open a **new** storyboard.

Teacher Notes

Activity 3 Global Footprint

Overview of Activity

In this activity, students consider how milk gets from a cow to their morning cereal and how this could impact on the environment.

Group Organisation

The activity begins with a class discussion about food. Students can then work either alone or in pairs, before coming back together to share their ideas.

Suggested Timing

This activity should be able to be completed in one lesson of 40 minutes to one hour.

Objectives

All students will: understand that the process of producing food has an impact on the environment and on the size of our global footprint.

Most students will: recognise and describe how people can reduce the size of their global footprint by taking different approaches to buying commodities.

Some students will: investigate a global footprint issue to encourage questioning and critical thinking on attitudes and behaviour.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

- **From a Cow to My Cereal** storyboard

Key Words: locality, environment, consumer, global footprint, carbon footprint, ecological footprint, packaging, pollution

Activities

Introduction

1. Ask the students to share with the class what they ate for their breakfast.
2. Hold a discussion on how the food ended up on their kitchen table.

Development

3. Tell the students that they are going to look at the route that milk travels from the cow to their homes.

4. Students demonstrate the journey by completing the flow chart in the **From a Cow to My Cereal** storyboard. Students are asked to go to the printing screen and drag each frame into the correct position on the printing template, so that the story makes sense.

Content of the From a Cow to My Cereal storyboard

First frame Title

Subsequent frames Mixed-up images of the journey milk takes from cow to the table:

Correct order: cow milking; milk in bulk tank at farm; milk tanker taking milk to processing plant; milk processing; packaging/bottling milk; lorry to supermarket; customer to supermarket; supermarket shelves; customer from supermarket and milk in cereal bowl on kitchen table.

Plenary

5. Ask the students to list the ways that this process might affect the environment. Ensure that fuel, pollution and packaging are included.
6. Students write down four things that they or their parents/guardians could do when buying food to reduce the impact on the environment. *Possible answers: get food/milk delivered to the house; buy more goods produced in the local area; recycle packaging; go to the supermarket less often; use the nearest shop*.
7. Ask students to share their ideas with the class.

Extension/ Homework

8. Students carry out a survey on the carbon footprint of their homes on the internet at **http://actonco2.direct.gov.uk/index.html** or on their ecological footprint at **http://footprint.wwf.org.uk/**

9. Using Kar2ouche, students present their findings to the rest of the class.
10. Hold a discussion on the best and easiest ways to reduce the size of our global footprints.

Student Notes

Activity 3 Global Footprint

Objectives

In this activity you will:

- consider the route milk takes to get from a cow and onto your morning cereal
- investigate how and why this journey could impact on the environment
- look at ways that you can reduce the size of your global footprint.

Outcomes

You will:

- complete a storyboard to show the journey that milk takes to get to your home
- decide on ways that you can reduce the size of your global footprint and so lessen the negative impact on the environment.

Resources

To complete this activity you will need:

- the **From a Cow to My Cereal s**toryboard

Activities

Introduction

1. Tell your class what you ate for breakfast.
2. Discuss how you think your food ends up on your kitchen table.

Development

3. Open and watch the **From a Cow to My Cereal** storyboard.

   to open the **From a Cow to My Cereal** storyboard.
4. Complete the flow chart in the storyboard to show the journey that milk takes from the cow to your home.

Plenary

5. List the ways in which you think this journey has an impact on the environment.
6. Write down four things that you or your parents/guardians could do when buying food to reduce the negative impact on the environment.
7. Share your ideas with the rest of the group.

Extension/Homework

8. Carry out a survey on the carbon or ecological footprint of your family's lifestyle. Your teacher will show you how to do this using the internet.

Student Notes

9. Use a Kar2ouche storyboard to present your findings to the rest of the class.

   click here to open a **new** storyboard.

10. Discuss the best and easiest ways to reduce the size of your global footprint with the rest of your class.

Unit 6: Farm Technology

Curriculum Area: ICT and History

Overview of Unit

This single activity combines learning objectives for ICT and History. It looks at the important development of the tractor in the 1930s and asks students to research other technological developments that make a farmer's life easier and safer, increase productivity and/or save money.

Key Stage/Year

Key Stage 2/Years 3-6

Activity

The unit comprises one activity that can form the backbone of a sequence of lessons to support ICT and History. You may want to supplement or adapt this activity to meet the needs of your particular class.

1. **The Black Tractor**

Assessment Opportunities

Assessment for Learning In this activity students can discuss what they consider relevant and why, and peer-assess their presentations.

Assessment of Learning Student presentations can be delivered for oral assessment and/or submitted as a publication to assess written skills.

Outcomes

By the end of this unit, students will have:

- completed a storyboard to explain the contribution Ferguson has made to farming practices
- researched other technological developments in farming
- created a storyboard explaining the benefits of technological changes in farming.

Curriculum References ICT

1 Finding things out

1a to talk about what information they need and how they can find and use it

1b how to prepare information for development using ICT, including selecting suitable sources, finding information, classifying it and checking it for accuracy

1c to interpret information, to check it is relevant and reasonable and to think about what might happen if there were any errors or omissions.

2 Developing ideas and making things happen

2a how to develop and refine ideas by bringing together, organising and reorganising text, tables, images and sounds as appropriate

2c to use simulations and explore models in order to answer 'What if ...?' questions, to investigate and evaluate the effect of changing values and to identify patterns and relationships.

3 Exchanging and sharing information

3a how to share and exchange information in a variety of forms, including email

3b to be sensitive to the needs of the audience and think carefully about the content and quality when communicating information.

4 Reviewing, modifying and evaluating work as it progresses

4a review what they and others have done to help them develop their ideas

4b describe and talk about the effectiveness of their work with ICT, comparing it with other methods and considering the effect it has on others

4c talk about how they could improve future work.

Curriculum References History

1 Chronological understanding

1a place events, people and changes into correct periods of time.

4 Historical enquiry

4a how to find out about the events, people and changes studied from an appropriate range of sources of information, including ICT-based sources

4b to ask and answer questions, and to select and record information relevant to the focus of enquiry.

5 Organisation and communication

5a recall, select and organise historical information

5b use dates and historical vocabulary to describe the periods studied

5c communicate their knowledge and understanding of history in a variety of ways.

11 Victorian Britain or Britain since 1930

11b A study of the impact of the Second World War or social and technological changes that have taken place since 1930, on the lives of men, women and children from different sections of society.

Teacher Notes

Activity 1 The Black Tractor

Overview of Activity

In this activity students research the life of Harry Ferguson and, in particular, the development of the Black Tractor. They sift fact from fiction based on the sources they find and create a summary storyboard outlining the importance of the Black Tractor. Using this as a model, they research other technological developments that have improved farming practices and create a storyboard.

Group Organisation

The activity begins with an explanation to the class, followed by pair work. Students can continue to work in these 'research' pairs to create their storyboards or work alone. The final activity, researching additional technological developments, can also be completed individually or in a pair.

Suggested Timing

This activity is likely to be completed in one to two sessions of around 40 minutes to one hour.

Objectives

All students will: talk about what information they need and how they can find and use it. They will also find out about events, people and changes from an appropriate range of sources of information, including ICT-based sources and recall, select and organise this historical information.

Most students will: find and prepare information for development using ICT, including selecting suitable sources, finding information, classifying it and checking it for accuracy. They will also ask and answer questions, and select and record information relevant to technological developments on farms since 1930.

Some students will: interpret information, check it is relevant and reasonable and think about what might happen if there were any errors or omissions.

Resources

Kar2ouche *On the Farm: ICT Across the Curriculum*

- **A Great Contribution** storyboard

Sheet 6.1a *Fact or Fiction?*

Sheet 6.1b *Organisation and Communication*

Key Words: chronology, development, technology, safety, accuracy, reliability, opinion, fact, fiction

Activities

Introduction

1. Explain to students that they are going to research what Harry Ferguson did to improve farming practices in the 1930s and the impact that this has had on farming ever since.
2. Give students Sheet 6.1a *Fact or Fiction*? This contains a number of statements and paragraphs on the life of Harry Ferguson. Explain that not all historical sources are reliable and that, before creating a presentation, facts need to be selected for their relevance and then checked.
3. Ask students to highlight or underline the information that is most relevant in describing the great contribution Harry Ferguson made to farming.
4. Having selected what is relevant, tell students that they now need to amend or delete erroneous details and add any necessary clarification. Explain that checks can be made using the internet and discuss how they might decide on the reliability of any conflicting information.

For Reference: Errors on Sheet

The agreement was with Ford not Toyota.

Fergie was grey not red.

Ferguson began selling American tractors in 1919 not 1999.

The Black Tractor is now on show in the Science Museum not the Tate Gallery.

The Black Tractor is black and not pale blue.

Harry Ferguson was born in 1884 not 1774.

Stirling Moss drove one of Ferguson's race cars (Ferguson P99); he was not the first to drive the Black Tractor.

5. If there is time, students should supplement the details they have on the sheet with further research. See Appendix 3 *The Black Tractor* for more information. This is also available in the text/audio section of the software. There are also a number of good websites including that of the Ferguson Family Museum listed in the contacts at the start of this pack.

Development

6. Ask students to open **A Great Contribution** storyboard and, using their research, to create a storyboard that explains Harry Ferguson's input to farming.

Content of A Great Contribution storyboard

First frame Title and instructions.

Remaining frames Blank for students to create own images and text.

7. In pairs, ask students to peer-evaluate each other's storyboards. If necessary, they could complete Sheet 6.1b *Organisation and Communication*.

Plenary

8. Share some of the better storyboards with the class, highlighting the good features.

Extension/ Homework

9. Ask students to research other areas of technological development on farms and to explain the contribution they have made to farming practices, for example, safety, cost, time and so forth. If students are stuck for ideas, you could suggest that they look at sheep shearing or milking.

Student Notes

Activity 1 The Black Tractor

Objectives

In this activity you will:

- talk about what information you need to create a presentation, how you can find it and how you can judge its accuracy
- find out about Harry Ferguson and how his inventions have changed farming
- refer to a range of sources of information
- recall, select and organise the historical information you find.

Outcomes

You will:

- make notes on the life of Harry Ferguson
- complete a storyboard showing Harry Ferguson's contributions to farming
- create a storyboard exploring other advances in farming technology.

Resources

To complete this activity you will need:

- the **A Great Contribution** storyboard
- Sheet 6.1a *Fact or Fiction*?
- Sheet 6.1b *Organisation and Communication*

Activities

Introduction

1. You are going to find out what Harry Ferguson did to improve farming in the 1930s and the impact this has had on farming ever since.
2. Look at Sheet 6.1a *Fact or Fiction*? Not all historical sources are reliable and this sheet has not been well researched. You are going to create a presentation about what Harry Ferguson did for farming, so:
   - first you need to decide which of the snippets of information is most relevant (delete the others)
   - now check the information that you have left – how will you decide if you find two bits of information saying different things?
3. If you have time, see if you can find out more about the development of the tractor to add to your presentation.

Student Notes

Development

4. Open the **A Great Contribution** storyboard and, using what you have found, create a storyboard that explains Harry Ferguson's input to farming.

   to open the **A Great Contribution** storyboard.

5. Work with a partner and check each other's storyboards. If necessary, use Sheet 6.1b *Organisation and Communication* to help you.

Plenary

6. Your teacher might show some of the storyboards to the class. Be prepared to say what you like about each one.

Extension/Homework

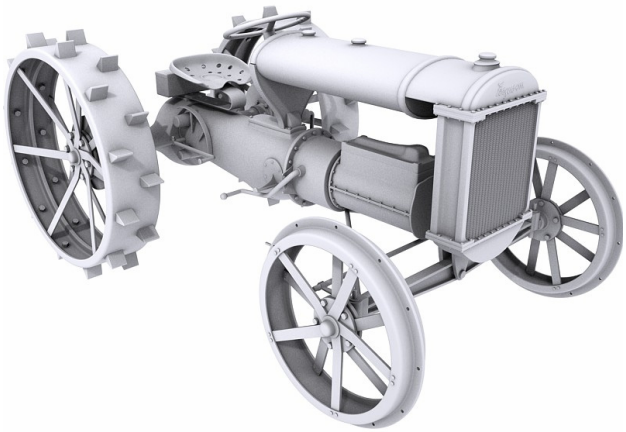
7. Find out about other inventions that have made a farmer's life easier, safer or more profitable. Create a storyboard to explain the invention and say how it has improved farming practices.

   to open a **new** storyboard.

Sheet 6.1a

Fact or Fiction?



Read the following snippets of information about Harry Ferguson and his achievements. They are not very well researched. Some are wrong, other bits are incomplete.

1. Decide which bits are relevant to a presentation about Harry Ferguson's contribution to farming and put a line through the irrelevant details.
2. Check that the information you haven't crossed out is correct. Your teacher will give you some pointers.

Harry Ferguson

The Ferguson Family Museum was opened in 2003.

In 1936 Ferguson started manufacturing his own tractors, but soon after entered into partnership with Mr Toyota and made over 300,000 new tractors.

Harry Ferguson was a man of great passion, creativity and inspiration.

Born in 1884, he was one of eleven children and grew up on a farm in Ireland.

He was one of the 20th century's greatest inventors and pioneers.

Today he is probably most noted for his little red Fergie tractor.

In 1999 he began to sell American tractors but, finding them heavy and dangerous to operate, he designed and built a new plough which was joined to the tractor in three-point linkage, so that both formed a single unit. This made the tractor more stable and safer.

Harry Ferguson also had an active interest in motor sport and flying.

After he invented the three-point linkage, he needed a lightweight tractor to demonstrate its advantages, so he designed and built what is now known as the Black Tractor. This is on exhibition in the Tate Gallery.

The first Black Tractor was completed in 1933.

Although called the Black Tractor it was in fact pale blue.

Three-point linkage is still one of the key design features of all modern tractors. This means that tractors can carry a range of different implements or tools, such as a plough or harrow, that they are safer and the traction is better.

Harry Ferguson was born on 4th November 1774.

By 1949 Ferguson Tractors held over 78% of the wheeled tractor business in Great Britain.

The Black Tractor needed to be manufactured cheaply. It also needed to be small and light so that it would be useful on small as well as large farms.

The Black Tractor was the forerunner of the grey TE20, known affectionately as the Fergie.

The first Black Tractor was driven by Stirling Moss.

Sheet 6.1b

Organisation and Communication

Read each other's presentations and answer the following questions.

Is the information clearly explained or summarised?

Is the information relevant? That is, does it explain Harry Ferguson's contribution to farming?

Is any of the information irrelevant?

Is the information well organised? In History presentations, it often helps to arrange the points in chronological order.

Does the presentation contain useful images?

What do you like most about the presentation?

What one thing would you improve?

Appendices

Appendix 1
Text and Audio Files

The following text replicates what is in the text/audio palette of Kar2ouche and is included here for your reference when planning activities for students.

Unit 1 ICT and Literacy

Activity 1 **Modern Farming** storyboard

Narrator	Modern Farming
Male Farmer	As I gaze at the large pile of silage, covered with black plastic and weighted with tyres, I smile to myself.
Male Farmer	Despite all the troubles on the farm, at least I have winter feed for my dairy herd.
Male Farmer	Gone are the days of baling hay for feed, thank goodness. I remember toiling for weeks trying to make hay for winter feed. It was of such variable quality.
Male Farmer	The problem was that hay made early could be ruined by bad weather, whereas hay made later wasn't of such good quality.
Male Farmer	With poorer food I had to buy supplements for the herd to keep the milk production up.
Male Farmer	We're a traditional farm and it took some soul-searching for us to decide to change, but change we did. One momentous spring we built a silage clamp to put the grass in.
Male Farmer	Everything was fine until milk quotas were introduced and we had to cut milk production by 10%. This was a shock, but we carried on. Farming is always beset by troubles; we're used to them.
Male Farmer	Now, every spring, a contractor arrives with his shiny new equipment and together, if the weather holds, we make the winter's silage in around 48 hours.
Male Farmer	This is a tense time as we watch the heavens for any sign of rain. Hardly anyone dares breathe and tempers are always frayed.
Male Farmer	On the first day the enormous mower arrives to cut over a hundred acres. It's an awesome sight.
Male Farmer	By the evening the forage harvester and the loading shovels turn up. The harvester loads grass into the trailers and the shovels put the grass into the clamp.
Male Farmer	Things don't always go to plan.

Male Farmer	One year the forage harvester digested the mattock that I'd lost the previous autumn. With an ear-piercing shriek of metal on metal, the whole machine ground to a halt.
Male Farmer	Last year one of the shovels simply broke down; something mechanical just conked out.
Male Farmer	Memories of these events increased the tension as we awaited this year's arrivals, but surprisingly all went to plan.
Male Farmer	I glance again at the huge pile of silage and look up.
Male Farmer	In the gathering dusk, the team leaves. I watch the diminishing rear lights twinkling a merry farewell.
Male Farmer	Lazily, I survey my valley farm with its fields of shorn grass contrasting with the still lush grazing paddocks and feel at peace with the world.
Male Farmer	Contented, I feel that I must be a reasonable custodian of my little bit of land.

Interview with a Farmer storyboard

Interviewer	Interview with a Farmer
Interviewer	Welcome to *Farming Today*. As part of our series exploring life on a modern farm we talk to Mr Jones, who runs a small livestock farm in the Cotswolds.
Interviewer	Hello Mr Jones. Let's start with an old favourite question for farmers. What time do you get up?
Old Farmer	The alarm goes off at 6.00 and I listen to the farming programme on the radio as I get ready to go out.
Interviewer	What do you do first?
Old Farmer	I clean the milking parlour, bring the cows in for milking and then scrape away the slurry.
Interviewer	When do you have breakfast?
Old Farmer	As soon as milking is over, about eight-ish usually.
Interviewer	What do you have?
Old Farmer	I don't have time for much – a cup of tea and some toast, sometimes a bit of bacon, but not often.
Interviewer	What do you do after breakfast?
Old Farmer	My wife and I feed the animals, clean out those that need it and put fresh straw bedding where it's necessary.
Interviewer	How do you react to the criticism that farmers are always moaning?
Old Farmer	I guess we do a bit, but it's a tough life. We're at the mercy of the weather, government policy and the pressure put on us by the big supermarket chains pushing for ever lower prices. Do you know as a nation we are prepared to pay more for bottled water than we are for milk?
Interviewer	What is your favourite part of the day?
Old Farmer	Early morning in late spring; the sun's coming up and the birds are singing. It's glorious.
Interviewer	How do you relax?

Old Farmer	I sing in the church choir and have a pint in the local.
Interviewer	Which part of your work do you like least?
Old Farmer	Sending my lambs to the abattoir.
Interviewer	Some people complain about the subsidies farmers get. What would you say to them?
Old Farmer	I'd say they need to find out a bit more. The subsidies aren't big and they're terribly hard to get. They're there for a reason and it's not charity.
Interviewer	What contribution do you think farming makes to modern life?
Old Farmer	Well, I know that on our farm we produce good local food at reasonable prices and where possible we sell it locally to reduce food miles. We also employ a couple of local people to help out on the farm. We farm organically so we look after the environment now and for future generations. We care passionately about the welfare of our animals and, by maintaining the hedgerows and leaving some of the fields fallow with wild flowers, we encourage wildlife. I spend time looking after the footpaths on my land for those who want to visit the countryside and we also provide reasonably priced Bed and Breakfast accommodation for walkers.
Interviewer	When do you finish work?
Old Farmer	Anywhere between 6.30 and 8.00. It's often even later in the summer – you get as much done as you can in the light.
Interviewer	Would you change your life?
Old Farmer	Get away with you. No, I love life on the land and with farming you feel you're giving something back to the community.

Purpose and Audience storyboard

Narrator	Purpose and Audience
Narrator	Delete any of the labels that don't describe what you see.
Female Student	(*Thought*) When did the Normans invade?
Woman	(*Thought*) Hmmm. How long do I cook this?
Man	(*Thought*) Do I believe this?
Man	Where do we want to go?
Woman	What time of year is best?
Man	What will it cost us?
Male Author	So how do I keep my readers excited? Should the dog jump in the water to save Billy or not?
Male Teacher	(*Thought*) [Sigh] Oh dear, this parent isn't happy with the school meals. With what she says her son has eaten, I can understand her point.

Activity 2 Secret Garden storyboard

Narrator Extracts from *The Secret Garden* by Frances Hodgson Burnett

Narrator When she passed through the shrubbery gate she found herself in great gardens with wide lawns and winding walks with clipped borders.

Narrator There were trees, and flower-beds, and evergreens clipped into strange shapes, and a large pool with an old grey fountain in its midst. But the flower-beds were bare and wintry and the fountain was not playing.

Narrator Mary went to the green door and turned the handle. She hoped the door would not open, because she wanted to be sure she had found the mysterious garden – but it did open quite easily and she walked through it and found herself in an orchard.

Narrator There were walls all around it also and trees trained against them, and there were bare fruit-trees growing in the winter-browned grass – but there was no green door to be found anywhere.

Narrator Mary looked for it, and yet when she had entered the upper end of the garden she had noticed that the wall did not seem to end with the orchard, but to extend beyond it as if it enclosed a place at the other side. She could see the tops of trees above the wall, and when she stood still she saw a bird with a bright red breast sitting on the topmost branch of one of them, and suddenly he burst into his winter song – almost as if he had caught sight of her and was calling to her.

Narrator She stopped and listened to him, and somehow his cheerful, friendly little whistle gave her a pleased feeling – even a disagreeable little girl may be lonely, and the big closed house and big bare moor and big bare gardens had made this one feel as if there was no one left in the world but herself.

Narrator The flower-bed was not quite bare. It was bare of flowers because the perennial plants had been cut down for their winter rest, but there were tall shrubs and low ones which grew together at the back of the bed, and as the robin hopped about under them she saw him hop over a small pile of freshly turned-up earth. He stopped on it to look for a worm ...

Narrator Mary looked at it, not really knowing why the hole was there, and as she looked she saw something almost buried in the newly turned soil.

Narrator It was something like a ring of rusty iron or brass, and when the robin flew up into a tree near by she put out her hand and picked the ring up.

Narrator It was more than a ring, however; it was an old key which looked as if it had been buried a long time.

Narrator One of the nice little gusts of wind rushed down the walk, and it was a stronger one than the rest. It was strong enough to wave the branches of the trees, and it was more than strong enough to sway the trailing sprays of untrimmed ivy hanging from the wall.

Narrator Mary had stepped close to the robin, and suddenly the gust of wind swung aside some loose ivy trails, and more suddenly still she jumped towards it and caught it in her hand. This she did because she had seen something under it – a knob which had been covered by the leaves hanging over it. It was the knob of a door.

Narrator She put her hands under the leaves and began to pull and push them aside. Thick as the ivy hung, it nearly all was a loose and swinging curtain, though some had crept over wood and iron ...

Narrator The robin kept singing and twittering away and tilting his head on one side, as if he were as excited as she was. What was this under her hands which was square and made of iron and which her fingers found a hole in? It was the lock of the door which had been closed ten years ...

Narrator The sun was shining inside the four walls and the high arch of blue sky over this particular piece of Misselthwaite seemed even more brilliant and soft than it was over the moor ...

Narrator Everything was strange and silent, and she seemed to be hundreds of miles away from anyone, but somehow she did not feel lonely at all ...

Narrator There had once been a flower-bed in it, and she thought she saw something sticking out of the black earth – some sharp little pale green points ... She bent very close to them and sniffed the fresh scent of the damp earth. She liked it very much ...

Stimuli storyboard

Narrator Stimuli

Narrator Make notes on the following images to help you write a descriptive passage about each.

Narrator The first frame has been completed to help you get started.

Activity 3

Planning storyboard

Narrator Planning

Narrator Copy your favourite image and notes from the *Stimuli* storyboard into frame 2 of this storyboard.

Narrator Now make notes on each element of the story you are going to write.

Narrator Beginning or introduction

Narrator Conflict

Narrator Event 1

Narrator Event 2

Narrator Event 3

Narrator Climax

Narrator Resolution

Narrator Ending or conclusion

Unit 2 ICT and Maths

Activity 1 **Farmer's 24 Hours** storyboard

Narrator Farmer's 24 Hours

Farmer The day starts when the radio alarm goes off at 6.00am. I go downstairs for a cup of tea and, as I get ready to go out, I listen to the farming programme.

Farmer Then I go out to the fields and bring in the cows for milking. Milking takes about two hours. This includes cleaning the milking parlour and scraping the slurry away from the cubicle shed.

Farmer After that I feed all the young stock and any small calves that are still on milk. Next I feed the pigs and finally, at approximately 10.00am, it's back to the farmhouse for breakfast.

Farmer Breakfast usually takes about one hour as I talk over plans with my partner.

Farmer The pigs need cleaning out before the cows are fed on silage and rolled barley at around midday. Feeding the cattle takes about an hour. Then all the cattle need straw bedding, which I put out with the 'straw-chopping machine' on the tractor.

Farmer I usually have a late lunch from about 2 to 3pm, and then I do any seasonal jobs. These change depending on the time of year. Typical tasks include repairing machines or fences, ploughing, sowing or even harvesting.

Farmer Around 5pm I feed the young stock for the second time and then, about 6pm, I start milking again.

Farmer I finish at approximately 8.00pm and have my tea, which, like other meals, takes about an hour.

Farmer Before I go to bed, at around 12.00, I complete any office work that needs doing. I usually watch TV or read for a couple of hours before going to bed.

Farmer I'm usually asleep before my head hits the pillow!

Narrator Stop the storyboard and fill in the column headed 'Number of hours the example farmer' on Sheet 2.1b *Hours* using the farmer's information. If you wish to watch the storyboard again, rewind and click play. At any time you can stop on a frame by clicking the pause button. Click on the next thumbnail when you have finished.

Narrator Drag the correct number of segments onto the 24-hour clock to represent the fraction of a day that the farmer spends on each activity. You will find different coloured segments in the props window.

Map of the Farm storyboard

Narrator Map of the Farm

Narrator On the aerial image of part of Worton Farm, show the shortest route that the farmer can take to complete the activities for a normal day. Use the information on Sheet 2.1a *A Typical Farmer's Day*. Choose the arrow from the props to mark your route. Click on the next thumbnail to begin.

Activity 2

Fields storyboard

Narrator Fields

Narrator Using the scale provided, estimate the size of each field in square metres and write your answer in the test boxes. In the last frame, write down the total size of the three fields and convert your answer into square kilometres or hectares.

Ploughing storyboard

Narrator Ploughing

Narrator Using the information in the following frames, work out how long it would take the farmer to plough each field. In the final frame, write the total time taken for all three fields in the text box.

Milking storyboard

Narrator Milking

Narrator Using the information in the following frames, work out how long it would take the farmer to milk a herd of cows. In the final frame, write the total milking time per day.

Activity 3

Milk storyboard

Narrator Milk

Narrator The following frame contains information on yearly milk production on a farm. You need to complete the bar chart in the third frame to represent monthly milk production.

Narrator Use a key to show the best and worst months for milk production, giving reasons for this.

Narrator To produce the bars use a text box and change it to the correct width and height. Use the special effects tab in layers if you wish to change the colour of the text box.

Unit 3 ICT and PSHE/Citizenship

Activity 1

Livestock, Wild Animal or Pet? storyboard

Narrator Livestock, wild animal or pet?

Narrator In the next frame you will see images of different animals. Your task is to decide whether the animals are livestock (farm animals), wild animals or pets.

Narrator Left click and drag each animal into the headed frames based on your decisions. If you think that one animal should be in more than one frame, then go back to this frame and drag the animal to another frame.

Narrator Choose one animal from this frame and in the caption window below explain the reasons why you placed it here.

Animal Needs storyboard

Narrator Animal Needs

Narrator In the following frame you will see images of different items. Your task is to drag five items you think animals need to keep healthy into the third frame beside one of the text boxes. Click on the next thumbnail to continue.

Narrator In the text box beside each image, explain why animals need this item to keep healthy.

Activity 2

Free-range storyboard

Narrator Free-range

Narrator Chickens are often housed in sheds with perches, or in deep-litter sheds, but have access to the outdoors during the day.

Narrator They can also be accommodated in movable houses. EU law states a maximum of 1,000 hens per hectare of outdoor space. This space must be 'mainly covered with vegetation'.

Narrator The young chickens arrive in the sheds at only a couple of days old.

Narrator In the sheds, the lighting is set to maximum daylight hours but is often dimmed to prevent too many fights and general aggression.

Narrator During the chickens' stay, the flooring of litter is not changed or cleaned.

Narrator After about 60 to 70 days, egg production reduces so the chickens are slaughtered.

Narrator Free-range farms go through about five to six batches of chickens per year.

Narrator This allows the litter to be cleared and the shed to be cleaned and fumigated between batches.

Narrator Free-range chickens are more likely than battery birds to catch bird flu from wild birds. They are also more susceptible to attacks from wild animals.

Narrator Due to the cost of the buildings, the need for secure fencing and the farmer's increased workload, free-range eggs are more expensive to produce than battery-produced eggs.

Narrator Farmers can, however, charge more for free-range eggs.

Battery storyboard

Narrator Battery Farming

Narrator There are around 30,000,000 chickens in this country – 85% of these are 'living' in battery farms.

Narrator Of the above, 70% are kept in sheds often containing 20,000 chickens or more, with some containing up to 100,000.

Narrator The minimum legal requirement of space for one chicken is just under three-quarters the size of an A4 sheet of paper.

Narrator Many farms have four or five chickens per cage. The cages are approx. 20 inches x 20 inches (500 x 500 cm).

Narrator Stacks of cages usually extend from one end of the shed to the other, and are stacked up to six high.

Narrator With fortified foods and artificial 'sunrise and sunset', the average annual egg yield of one chicken is 338 per year.

Narrator Over 2,000,000 chickens die in their cages each year from disease, usually caused by improper control of faeces clearing.

Narrator Chicken beaks are often cut off to stop them causing too much damage to each other.

Narrator Chickens spend 70 to 72 weeks in this condition before they are killed for pet food or even pies for us.

Narrator By then, most are suffering from brittle bones caused by lack of movement and standing on the wire bottoms of their cages.

Narrator Battery farming involves less work for the farmer.

Narrator This is the cheapest way of mass producing eggs.

Map of the Farm storyboard

Narrator Map of the Farm

Narrator Using the aerial view of Worton Farm, use props and text boxes to show where on the farm you would choose to put a hen/egg production site. Explain in the caption window the reasons for your choice.

Unit 4 ICT and Science

Activity 1 **Life Processes** storyboard

Narrator Life Processes

Narrator Add a tick or cross to each of the blank cells in the table.

Narrator Tractor

Narrator Wheat

Narrator Sheep

Narrator Define what makes each item distinct.

Activity 2 **Edible Plants** storyboard

Narrator Edible Plants

Narrator Click on the fruit.

Narrator Click on the flower.

Narrator Click on the leaf.

Narrator Click on the seed.

Narrator Click on the stem.

Narrator Click on the root.

Narrator Excellent, spot on.

Narrator That's right, well done.

Narrator You're a genius.

Narrator No, try again.

Narrator Not quite, have another go.

Narrator Wrong – so try another time.

Narrator Rhubarb

Narrator Which part of the plant do you eat?
Narrator Fruit
Narrator Flower
Narrator Leaf
Narrator Seed
Narrator Stem
Narrator Root
Narrator You'll be safe in the kitchen.
Narrator You'd better check this.
Narrator Apple
Narrator Beetroot
Narrator Sometimes we eat the leaves, but which is the main editable part?
Narrator Potato
Narrator Spinach
Narrator Celery
Narrator Sometimes we eat the seeds and the leaves, but which is the main editable part?
Narrator Tomato
Narrator Yes the seeds too, but which is the main editable part?
Narrator Broccoli
Narrator Peanut

Fruit or Root? storyboard

Narrator Fruit or root?
Narrator This is ginger. We eat it as a spice or flavouring in food. It is the *root* of the plant.
Narrator Upload some pictures of exotic or unusual fruits and vegetables and describe them.

Activity 3

Types of Farming storyboard

Narrator Types of Farming
Narrator What sort of farming or farm activity is shown?
Narrator Create a picture to show this type of farm activity.
Narrator Farmer's Market
Narrator Footpath – stewards of the countryside.
Narrator Timber
Narrator Add your own images and descriptions.

Healthy Eating storyboard

Narrator Healthy Eating
Narrator The main food groups comprise: proteins, carbohydrates, fats and dairy, fruits and vegetables, and sugars.
Narrator Complete the Healthy Eating storyboard.
Narrator Select props to show the sorts of proteins you can get from farms in the UK.

Narrator Write a description in the caption window.

Narrator Select props to show the sorts of carbohydrates you can get from farms in the UK.

Narrator Select props to show the sorts of fats and dairy produce you can get from farms in the UK.

Narrator Select props to show the sorts of fruits and vegetables you can get from farms in the UK.

Narrator Select props to show the sorts of sugars you can get from farms in the UK.

Good Food Leaflet storyboard

Narrator Good Food Leaflet

Narrator Follow the written instructions in each frame.

Food Miles storyboard

Narrator Food Miles

Narrator Complete the following maps to work out where food comes from and how many food miles are involved.

Narrator Add a chicken to Norfolk.

Narrator Add potatoes to Cheshire.

Narrator Place apples in Worcestershire.

Narrator Work out roughly how many food miles each would have to travel to be delivered to your door.

Narrator Add examples of food from the UK that you have eaten recently.

Narrator How many food miles did each travel?

Narrator What is that in total?

Narrator Add bananas to Jamaica.

Narrator Add grapes to Italy.

Narrator Add tomatoes to Spain.

Narrator Add examples of world food that you have eaten recently.

Activity 4

Farming Landscapes storyboard

Narrator Farming Landscapes

Narrator Farms are made up of all different sorts of land and landscape.

Narrator Describe each landscape in the caption window.

Narrator Make a note of the man-made or human-influenced features.

Narrator Make a note of the natural features.

Narrator What resources might be farmed here?

Narrator How might the farm make money here?

Narrator Add your own images and notes.

What do Plants Need to Survive? storyboard

Narrator What do Plants Need to Survive?

Narrator What does this show the plant needs?

Narrator A plant needs ...

What do Animals Need to Survive? storyboard

Narrator What do Animals Need to Survive?

Narrator What does this suggest about what an animal needs?

Narrator Animals need ...

Adaptation storyboard

Narrator Adaptation

Narrator Explain how the organisms in the following frames are adapted to the landscape.

Narrator Create your own images or upload some digital pictures to illustrate how animals and plants are adapted to their environments.

Narrator Write an explanation in the caption window.

Activity 5

Venn Diagram storyboard

Narrator Venn Diagram

Narrator How can you group or classify the sorts of food you can get from farms in the UK?

Narrator Fill in the blank labels with the names of UK-produced foods.

Narrator Label each of the circles and add foods to each section.

Food Chain storyboard

Narrator Food Chain

Narrator All food chains begin with a plant.

Narrator The vegetables and cereals we eat need sunlight, water and soil to grow.

Narrator What do farm animals need?

Narrator The elements in a food chain are either producers or consumers.

Narrator Consumers can be either predators or prey.

Narrator Put the following into order in the food chain.

Narrator Why might farmers be pleased to see an owl on their land?

Narrator Why might farmers be pleased to see a blackbird on their land?

Food Web storyboard

Narrator Food Web

Narrator The relationship between producers and consumers is sometimes more complex than a food chain suggests.

Narrator A complex food chain can be better described as a web.

Narrator Move the items around and add arrows to create a food web.

Narrator Create your own food webs.

Unit 5 ICT and Geography

Activity 1 **Map of the Farm** storyboard

Narrator Map of the Farm

Narrator Use text boxes to make a key. Use your key to show hedges, trees, field margins, pond areas and any other features. Complete the storyboard by stating how environmentally friendly you think Worton Farm is. Write your response in the caption window.

Activity 2 **Primary, Secondary or Tertiary** text/audio

Narrator Primary, Secondary or Tertiary

Narrator The primary economic sector includes obtaining and refining raw materials. All types of industries producing natural resources, such as fishing, farming, forestry and mining, are a part of the primary economic sector. Therefore, growing crops is a primary activity.

Narrator The secondary economic sector deals with the processing of raw materials into finished goods. Brewing, engineering and all types of processing plants are part of the secondary economic sector. Therefore, the processing of cows' milk into pasteurised milk is a secondary activity.

Narrator The tertiary economic sector has to do with services to businesses and consumers. Transportation, banking, tourism and retail stores are all part of the tertiary economic sector. Therefore, a supermarket is an example of a tertiary activity.

Narrator The movement of goods and services through the primary, secondary and tertiary sectors is referred to as the 'chain of production'. For example, trees are sourced to make paper, then the pulp is processed to create the paper and then the finished product is sold in stores.

Activity 3 **From a Cow to My Cereal** storyboard

Narrator From a Cow to My Cereal

Girl This is the story of how milk from a cow ends up in my cereal.

Girl It all starts at a dairy farm.

Girl Cows eat grass or food provided from the farmer to help them produce their milk.

Girl The cows are milked by the farmer, using electric milking machines which have special suction cups that are attached to the cows' teats. All the equipment must be clean and sterile and the cows' udders must have been washed to remove any dirt.

Girl After the cows have been milked, the fresh milk is pumped to the farm's storage vats, which are called bulk tanks. Here it is filtered, cooled and stored at, or below, $4^{o}C$.

Girl A milk tanker arrives at the farm to transport the milk from the dairy farm to the factory. Before accepting the milk, the tanker drivers test it to make sure it is OK – it must be clean and smell fresh, and comply with all health standards. The milk tankers are insulated to keep the milk at, or below, $4^{o}C$.

Girl The tankers deliver the milk to the factory, where it must again be checked to ensure it has been kept at or below 4^{o}C during distribution. The milk is then pumped into large insulated vats at the factory. All machinery and equipment at the factory is cleaned regularly. Samples of the milk are taken at various stages during processing to check the temperature and quality.

Girl The next step is the processing of the milk. This includes pasteurisation, which allows milk to stay fresh longer, and homogenisation, to prevent the cream separating and settling on top of the milk.

Girl Milk is then sent through a processing line to be packaged in cartons or bottles. Once the correct amount of milk has been put in, the container is heat sealed, stamped with the 'use by' date and packaged in milk crates.

Girl The next day the milk is distributed from the factory to various milk depots in refrigerated lorries. At the depots, the milk is picked up by smaller trucks or vans and driven to supermarkets, corner stores, schools, cafés and households.

Girl I go shopping with my mum and we buy some milk.

Girl Every morning I have a bowl of cereal and milk for my breakfast.

Unit 6 ICT and History

Activity 1 **The Black Tractor** text/audio

Narrator The Black Tractor

Farmer America was the main producer of tractors between the First and Second World Wars, but the greatest revolution in the development of tractors came from Northern Ireland when Harry Ferguson created the connection between tractor and plough which is still used today.

Farmer By the end of the First World War, the triangular plough hitch allowed one man to plough alone. Unfortunately, this hitch had a serious problem. When the plough caught on an obstacle, the tractor spun around its rear wheels and turned over. The farmer was often caught underneath and was sometimes killed or seriously injured.

Farmer Ferguson's invention of the rigid three-point linkage stopped tractors turning over, even when they hit an obstacle. It transferred the drag of the plough to the front of the tractor, which held the front wheels down. This meant the tractor no longer reared up and flipped over.

Farmer Despite its obvious advantages, Ferguson could not sell his three-point linkage hitch to tractor manufacturers, so, in 1933, he built his own! This was the Black Tractor which was used as a prototype for the David Brown A Tractor built in 1936. All modern tractors still use the Ferguson invention incorporated in the iconic Black Tractor.

Farmer Ferguson parted company with David Brown in 1938 and made an unwritten agreement with Henry Ford for production of the Ford Model 9N in the USA. This lasted until Ford's death in 1947.

Farmer Following Ford's death, Ferguson set up his own company to develop and sell his Ferguson system tractors and range of implements. In 1953 this company merged with Massey Harris of Canada, giving rise to the Massey Ferguson brand name in 1958.

Farmer Ferguson was a man of great vision. In 1943 he made a speech in Maryland, USA, saying that he thought the savings offered by his tractor would lead to the end of hunger, a primary cause of war. In at least one way, he was right: he led the way in power farming and the industrialisation of agriculture, making food more plentiful and cheaper for the consumer.

Farmer The original Black Tractor can be seen in the Science Museum Tractor collection. The reproduction in this title is an accurate rendition made from measurements and images of this tractor.

Appendix 2
Kar2ouche and Special Needs

It may be a truism to say that all children have special educational needs, but it does mean that teachers are always considering ways of differentiating the lessons that they teach in order to meet the requirements of individual students. A totally flexible learning and teaching tool, Kar2ouche is easily adapted to these needs so that the teacher and/or classroom assistant can create lessons that appeal to the full ability range from the least to the most able.

However, looking at the more widely used definition of special needs as referring to those students who experience some kind of sensory or learning difficulty, on average 20% of students in comprehensive schools fall into this category. A number of studies have shown that computers can enhance the learning experience of these children.

> From 1988-90 the Palm Project explored the effects of computers on pupils' autonomy in learning. The project found that not only were they more autonomous, but also more motivated.
>
> Glendon Ben Franklin in Leask, M (ed.) (2001) *Issues in Teaching Using ICT*, Routledge

In particular, multimedia products such as Kar2ouche appeal to a wide range of learning styles and have the advantage of being able to reinforce learning in a multi-sensory way through the use of visual and auditory stimuli. The fact that Kar2ouche enables students to create storyboards, animations and publications, plus manipulate and interpret text, also appeals to those with a preference for a kinaesthetic approach to learning.

Children with special needs are often prevented from functioning effectively in lessons because much of the work required is based on reading and writing, skills that are often underdeveloped. In Kar2ouche, all of the text is provided with a soundfile so that students can access information even if their reading skills are impaired. Listening to increasingly complex texts extends a student's vocabulary whilst also increasing his or her attention span. By following the text as they listen, students begin to recognise words and are provided with a real context for their learning.

In addition, Kar2ouche enables children to record their own voices, thus providing an alternative to writing. This provides immediate gratification and the ability to communicate with their peers in a way

that increases their confidence. 'Nothing motivates children with special needs more than success, especially when their peer group can see that success is demonstrated on an equal basis without allowances being made.' (Angela McGlashon in Gamble, N and Easingwood, N (2000) *ICT and Literacy*, Continuum) Once confidence has been built, the speech and thought bubbles offer the opportunity for students to write in small bite-size chunks. This can be increased gradually by requiring students to produce a paragraph in the caption window and subsequently maybe to use the writing frames and scaffolds provided in the teacher support packs that accompany the software.

The soundfiles and recording facility can therefore be seen to enable learners to develop greater independence and this encourages them to continue with tasks that may once have been beyond them. Using Kar2ouche makes a range of curriculum areas far more accessible to non-readers and also to children whose first language is not English. These children often find reading the language far more difficult than speaking it.

As well as children with learning difficulties, Kar2ouche enhances the learning of children with behavioural problems, such as attention deficiency syndrome. In trials, these students found the multi-sensory and creative approach motivating, non-threatening and rewarding. It has been shown in a range of research that students who experience difficulties interacting socially often find using computers less intimidating or confusing. However, ideal for pair or small group work, Kar2ouche can be used by the teacher to encourage collaborative learning, thereby supporting these students as they begin to develop the ability to express themselves in a social situation. Having rehearsed ideas in a small group, they are then more confident when required to present their ideas to the class or an adult.

For students with visual impairment, the teacher can go into the password-protected area to increase the size of the font. The soundfiles also help these children. Likewise the brief sound-clips support dyslexic children, many of whom find processing large amounts of information in a single unit difficult. They can also control the pace of the reading and repeat it as necessary, thus allowing them to consolidate learning. For those whose hearing is impaired, the combination of text and exciting visual material is motivating and, by being able to attach pre-recorded soundfiles, students are provided with an effective means to communicate with their hearing peers. The record and playback facility also allows children with less severe hearing problems to rehearse their enunciation in a safe environment before sharing with others.

Every effort has been made to make Kar2ouche a fully flexible learning and teaching tool, to enable children of all abilities to have fun whilst engaging in activities that challenge them appropriately as they develop skills, knowledge and understanding in a range of curriculum subjects. To this end we are continuing to listen to teachers, support research projects and use findings to develop additional features that will help to move learning forward.

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