

Unit 3 Processing text and images

About the unit

In this unit pupils work in small groups to prepare a printed newspaper. They gather, process and output information in text and image form and explore a variety of image-capture and image-manipulation methods to create suitable image data. They learn to develop strategies of group working, including data sharing across networks.

There are opportunities for links with English when pupils develop the text for the newspaper. Links could also be made to other subjects when choosing the topics for the articles, *eg the weather, sport*. The newspaper could be produced in another language, providing opportunities to collaborate with the modern foreign languages department.

Note: in some areas the local press are happy to assist or contribute to such activities. It may also be possible to integrate this task within a single 'activity week'.

This unit is expected to take approximately 7 hours.

Where the unit fits in

This unit builds on the key stage 2 scheme of work, in particular unit 3A 'Combining text and graphics', unit 4A 'Writing for different audiences', unit 4B 'Developing images using repeating patterns', unit 4D 'Collecting and presenting information: questionnaires and pie charts', unit 5B 'Analysing data and asking questions: using complex searches' and unit 5C 'Evaluating information, checking accuracy and questioning plausibility'.

Pupils may already have worked in small groups in ICT, and this unit will build on that practice. The unit also acts as an introduction to networking ICT resources.

Expectations

At the end of this unit

most pupils will: work collectively to organise, refine and present a newspaper using a template designed through analysis of audience needs; identify image requirements, acquire and process images by the most appropriate method; share information freely among the group; apply their template and system to the production of further printed output

some pupils will not have made so much progress and will: work within a group and help in organising, refining and presenting a newspaper using a template; scan suitable images from identified sources; share information

some pupils will have progressed further and will: develop a process of newspaper production that divides tasks into clearly defined subtasks with clarity in the analysis and design of the solution (extra work may involve advanced processes, *eg simulating pre-press production, creating separation film*); manage and time subtasks; develop a range of appropriate template styles for a variety of uses

Prior learning

It is helpful if pupils have:

- prior experience of using word-processing and desktop-publishing software
- used a 'painting' graphics package to produce their own pictures

Extension and enrichment

Pupils could prepare content for their production using libraries and other resources. This unit could also form part of their preparation for a newspaper day. Content for the newspaper could be prepared in other subjects.

Language for learning

Through the activities in this unit pupils will be able to understand, use and spell correctly vocabulary relating to:

- digital images, *eg scanner, digital camera, frame capture, file type, resolution, dpi (dots per inch)*
- desktop publishing, *eg line art, template, greyscale, attributes*
- file types, *eg compression, bitmap, vector graphic, CMYK (cyan, magenta, yellow, key/black)*

Speaking and listening – through the activities pupils could:

- collaborate with others to share information and ideas, and solve problems

Reading – through the activities pupils could:

- identify the main points in each paragraph, distinguishing key points from supporting material

Resources

Resources include:

- desktop-publishing software
- word-processing software
- scanner
- digital camera
- video-capture software and hardware
- photo CD, clip art

Some resources will need to be saved in shared networked areas.

Pupils should learn:

Pupils:

Activity 1

- Explain to the class that they are going to work in groups of three to five pupils to produce a newspaper. Explain that the newspaper will have a minimum of two sides and that each member of the group will have responsibility for at least one part of the paper. The paper will include appropriate images that must be in digital format and collected/prepared from a variety of sources. The content should be up to date and reflect the interests of the chosen audience, and be produced using shared resources. Teachers may use real examples for discussion, *eg house styles*.

- The content of the newspaper could be produced through coordinated working with English and other subject areas. Teachers should make a decision about the newspaper theme before starting this unit or in discussion with pupils. ICT sessions should, wherever possible, deal with imaging, networking, systems and final production. The text content should ideally have been produced beforehand, since the objective is for pupils to manipulate the text not produce it.

- that newspapers use layouts that provide a recognised 'style'
- to identify key information

- Ask pupils to prepare an analysis of the main criteria behind the layout of newspapers and other publications through discussion and comparison of different styles. The following must be included: headings; subheadings; body text; columns; boxes; graphics; fonts; and font size.
- Ask pupils to identify the main points in each paragraph of a newspaper story and explain how to follow the sequence of ideas being described.

- describe a variety of newspaper 'styles' based on a few key elements of design and layout
- identify the key information contained in newspaper text

- Links with local newspapers could be used here to enhance the learning experience.

- that collaborative and systematic working is helpful to complete complex tasks

- Discuss the structure of a small newspaper team and look at the design steps needed to produce a newspaper. Give out a flow diagram of the key processes and outcomes involved in newspaper production and discuss its structure. Include choice of audience, analysis of audience's needs, gathering of data/information, processing of data/information and production of final copy.
- Discuss how groups share information and exchange ideas.

- demonstrate collaborative working and a systematic approach
- contribute usefully to group activity, showing understanding of the task

- The flow diagram could have blank boxes with contents listed separately for pupils to complete. This will assist in discussing the system structure.
- Homework could involve pupils gathering the stories that are needed for the newspaper.
- This activity will emphasise that collaborating with others can be useful when sharing information, ideas and solving problems.

Learning objectives

Pupils should learn:

Possible teaching activities**Learning outcomes**

Pupils:

Points to note**Activity 2**

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| <ul style="list-style-type: none"> • that content should be factually correct | <ul style="list-style-type: none"> • Ask groups to select a target audience and consider, for that audience, appropriate content. Responsibility for that content should be shared among the group. Ask pupils to allocate tasks to themselves following group discussions. Discuss sources of information and the reliability of that information. | <ul style="list-style-type: none"> • give reasons why reliability of content should be checked | <ul style="list-style-type: none"> • Groups can be formed either as directed or by free choice. Once each pupil has a particular task then further materials might be gathered as part of a homework assignment, <i>eg graphics and factual content</i>. |
| <ul style="list-style-type: none"> • how information is shared on a network | <ul style="list-style-type: none"> • Give each group a username and explain 'their' shared areas of the network, adding that all work must be saved to these areas. | <ul style="list-style-type: none"> • demonstrate that they can save and load files from shared areas across the network | <ul style="list-style-type: none"> • Each group should be allocated a group username with its own set of permissions and directories. The directories and usernames must be prepared before this lesson. • Once a group has its username and password, content for the paper could be created and saved into the working directory during club or curriculum activities. |
| <ul style="list-style-type: none"> • how to prepare content for compilation • about the variety of file types used and why they are used | <ul style="list-style-type: none"> • Explain that the newspaper is to be 'pasted' together from the various elements. This can be emphasised by creating a jigsaw made out of a newspaper page where each 'piece' is a single element of the page's make-up. • Explain that text and graphics are prepared as individual files and saved to the shared area for later inclusion. Introduce file compatibility issues and reach an agreement on the file formats to be used, <i>eg fully formatted text or rich text format</i>. Ask pupils then to start to prepare their text for inclusion at a later stage. | <ul style="list-style-type: none"> • break down a complex task into smaller subtasks, to make it more manageable • show through actions that they know files must be compatible and which type to use | <ul style="list-style-type: none"> • Preparation of text at this stage should be confined to synthesising it rather than entering new text, which takes up valuable time. |

Activity 3

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| <ul style="list-style-type: none"> • the key principles of digital imaging | <ul style="list-style-type: none"> • Illustrate the basic theory of digital imaging with particular reference to pixels and resolution. Use some simple examples of common images that are initially made up of only a few pixels, slowly increasing the number of pixels until they can be recognised. • Remind pupils about methods of capture, <i>eg digital camera, scanning</i>. | <ul style="list-style-type: none"> • produce appropriate image files using digital imaging and image capture | <ul style="list-style-type: none"> • Some historical context should be included if possible. Reference to early use of digital images, such as the Viking lander space probe imager, could be made. |
| <ul style="list-style-type: none"> • methods of image capture, editing and manipulation • that images can be saved in a variety of file types • that the file type chosen must be based on its final use and the resources available | <ul style="list-style-type: none"> • Use prepared image files and ask the pupils to correct the image following clear directions, possibly produced as online guides or worksheets. Tasks may include: <ul style="list-style-type: none"> – image conversion, <i>eg colour to greyscale</i> – changing image size and resolution – colour, intensity and contrast corrections – application of special filters – saving and retrieving image files using different file formats | <ul style="list-style-type: none"> • demonstrate the process of image editing and manipulation • use some of the different file types used for images • create suitable page-ready images from a variety of sources | <ul style="list-style-type: none"> • Final image output must be referenced, as this directly influences decisions in image processing. • Teachers may need to investigate the features of the particular software being used. Pupils should be introduced to different file types, <i>eg TIFF and JPEG</i>. |

Learning objectives

Pupils should learn:

Possible teaching activities**Learning outcomes**

Pupils:

Points to note**Activity 4**

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| <ul style="list-style-type: none"> • that page layout and template design is central to good presentation of newspapers | <ul style="list-style-type: none"> • Remind pupils of activity 1. Ask them to work within their groups to produce their layouts as rough designs, emphasising that layouts should be designed to suit the audience. | <ul style="list-style-type: none"> • create a layout which takes the audience into account | <ul style="list-style-type: none"> • Homework could involve investigating the vocabulary of desktop publishing and imaging and providing a critical analysis of a variety of newspaper styles related to their audience. Magazines could be included here. |
| <ul style="list-style-type: none"> • about the production of newspapers | <ul style="list-style-type: none"> • If necessary, time should be taken to ensure that the principle of using 'layers' or 'frames' in desktop publishing work is understood, as is the fact that these are objects with attributes, and that these attributes affect the overall working of the template. • Ask pupils to convert the layout into a template using a desktop publishing package, reminding them to add components, such as titles, date and prices. • Ask groups to work on final preparation of text files and carry out any image capture and preparation work. • Explain to pupils how to begin and end pieces of work appropriately, group sentences into paragraphs using subheadings, develop ideas and plans into continuous text. | <ul style="list-style-type: none"> • know that desktop publishing packages use frames or layers to hold individual pieces of information, whether text or graphics | <ul style="list-style-type: none"> • During this activity the most able pupils should be encouraged to use club times to develop the system further and investigate the concepts of pre-press production with consideration to other users. |

Activity 5

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| <ul style="list-style-type: none"> • to reflect critically on their work | <ul style="list-style-type: none"> • Ask groups to paste all the necessary materials into the newspaper template and add the subheadings, applying the necessary formatting to ensure good presentation. Print out the final product. • Ask the groups to evaluate how well they did with particular reference to the criteria set out in activity 1. Ask pupils for their comments on how to improve the system/layout/content. | <ul style="list-style-type: none"> • analyse their work and reflect on its effectiveness | <ul style="list-style-type: none"> • Homework: pupils could provide a critical analysis of another group's newspaper. |
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