

INSPIRE COMPUTING

International

Workbook

YEAR 8

Name: _____

Class: _____

INSPIRE ***COMPUTING***

International

Workbook

YEAR 8

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Pearson

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Welcome to Inspire Computing!

Whether for school, fun, work or staying in touch with relatives around the world digital technology is all around us.

Through coverage of ICT and Computer Science you will discover how this amazing technology works, how it connects the world together and it has revolutionised the classroom, workplace, and home.

Learning objectives

This is what you will know or be able to do by the end of the lesson.

Activity

You might need to write or draw an answer, circle pictures or words, or tick or match answers.

The internet and the world wide web

1. Learning objectives

- Understand the terms internet and world wide web (WWW).
- Know how to spot a fake or spoof website.
- Understand the importance of being respectful and staying safe online.

2. Starter activity

Draw a line from the term to its description

The internet: The shared pages of content that we access from our computers or smartphones.

The world wide web: A network of connected computers around the world.

3. Online confusion

Describe the difference between the internet and the world wide web.

4. Uses of the internet

Describe three different ways in which we use the internet.

-
-
-

1. Key word definitions

Tick the word or phrase when you know its meaning.

<input type="checkbox"/> digital divide	<input type="checkbox"/> post
<input type="checkbox"/> email	<input type="checkbox"/> spoof
<input type="checkbox"/> fake	<input type="checkbox"/> streaming
<input type="checkbox"/> internet	<input type="checkbox"/> web browser
<input type="checkbox"/> network	<input type="checkbox"/> spoof
<input type="checkbox"/> online gaming	<input type="checkbox"/> wireless
<input type="checkbox"/> online shopping	<input type="checkbox"/> world wide web (WWW)

Key words definitions

Test your knowledge of the key word

Instruction

Read this carefully to know what to do.

8. Plenary quick quiz

Plenary quick quiz

A fun way to test what has been understood from the lesson.

Question 1	Question 2	Question 3	Question 4	Question 5
True or false? Only online videos can be embedded in a slide.	Name the device required to record sound.	What is the movement from one slide to another called?	True or false? If the website changes, any embedded content will disappear.	Which of the following is not a form of interactivity?
<input type="checkbox"/> true <input type="checkbox"/> false	<input type="checkbox"/> speaker <input type="checkbox"/> projector <input type="checkbox"/> mouse <input type="checkbox"/> microphone	<input type="checkbox"/> text box <input type="checkbox"/> transition <input type="checkbox"/> animation <input type="checkbox"/> sound effect	<input type="checkbox"/> true <input type="checkbox"/> false	<input type="checkbox"/> navigation <input type="checkbox"/> website links <input type="checkbox"/> use of logos <input type="checkbox"/> sound clips

We hope you will find this book useful in developing your knowledge of digital technology, its effective use of applications and in supporting future learning.

Each topic includes easy to understand theory, real-world examples, and ideas for further investigation. You can also test your knowledge of keywords and regular exam-quality questions with supported answers. A checkpoint at the end of each lesson is a quick and easy way to check your own understanding.

Short answer questions

Questions to solidify your learning and prepare you for your exam.

Unit 5: Programming Part 1: End-of-unit assessment

Unit 5: Short answer questions

1. A typical 4-mark question

You are teaching a class of young students about databases and the importance of relational operators.

Describe the purpose of relational operators and give the function of at least three operators.

2. Another 4-mark question

You are starting a new job at a large programming organisation that creates large-scale computer models and simulations.

Describe the difference between a model and a simulation. Include an example of each.

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Unit 5: Programming Part 1: Revision checklist

Revision checklist

	MIND-MAP	MISSING WORDS	WRITE A QUIZ	FLASHCARDS	COVER AND WRITE
US L1 - An introduction to programming					
US L2 - Sorting algorithms					
US L3 - Using operators					
US L4 - BIDMAS					
US L5 - Relational operators					
US L6 - Using variables					
US L7 - Sequence, selection and iteration					
US L8 - Modelling and simulations					
US L9 - Error checking					
US L10 - Subprograms					

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Revision checklist

Ensuring you are covering all revision forms for your learning and finding what works best for you!

Vector graphics

Learning objectives

1. Understand the nature and purpose of a vector image.
2. Understand how a vector image can be created using coordinates.
3. Know how and why vectors are used for specific situations.

1. Key word definitions

Tick the word or phrase when you know its meaning.

- | | |
|--|-------------------------------------|
| <input type="checkbox"/> coordinate | <input type="checkbox"/> scale down |
| <input type="checkbox"/> geometry | <input type="checkbox"/> scale up |
| <input type="checkbox"/> image quality | <input type="checkbox"/> vector |

2. Starter activity

Give three pieces of information required to create a vector.

1.
2.
3.

3. Benefits of vectors

Describe three benefits of vector graphics.

1.
2.
3.

4. Real-world uses of vectors

Describe two real-world uses of vectors.

1.
2.

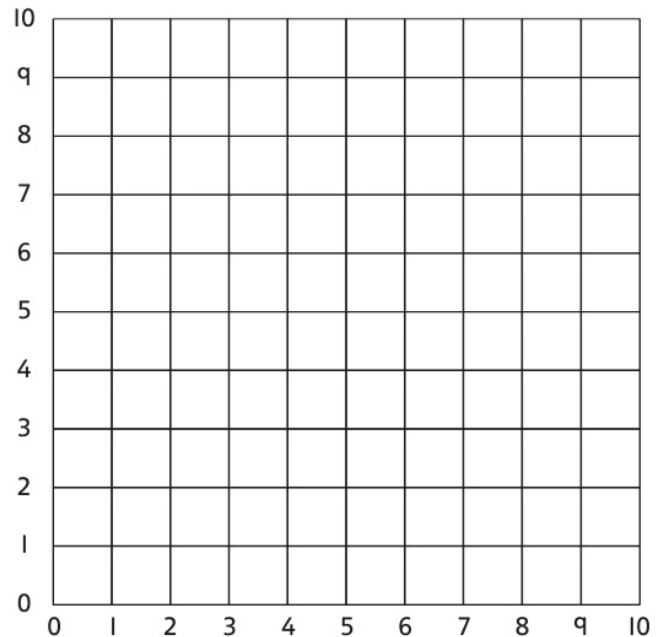
5. Create a vector

Create a vector using the instructions below:

Graphic 1:

Start: X4, Y2

End: X9, Y8



6. Vector instructions

Complete the missing instructions for the graphic shown:

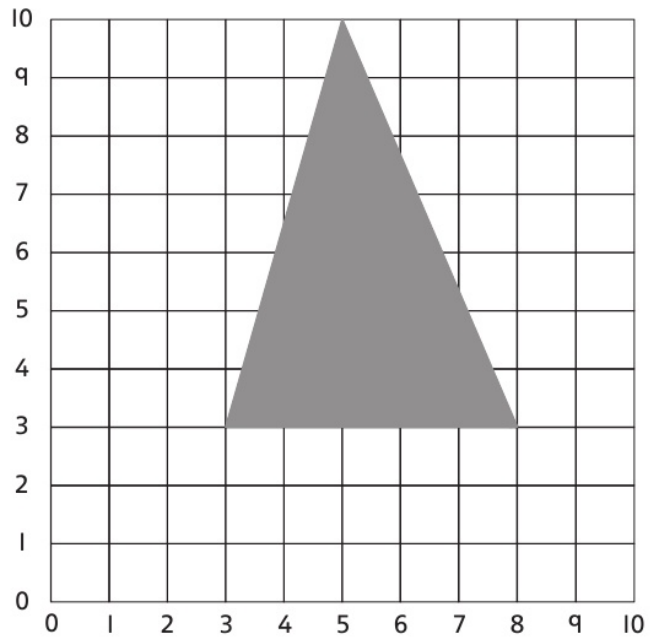
Graphic 1:

Start: X3, Y3

Mid: X5, Y10

End:

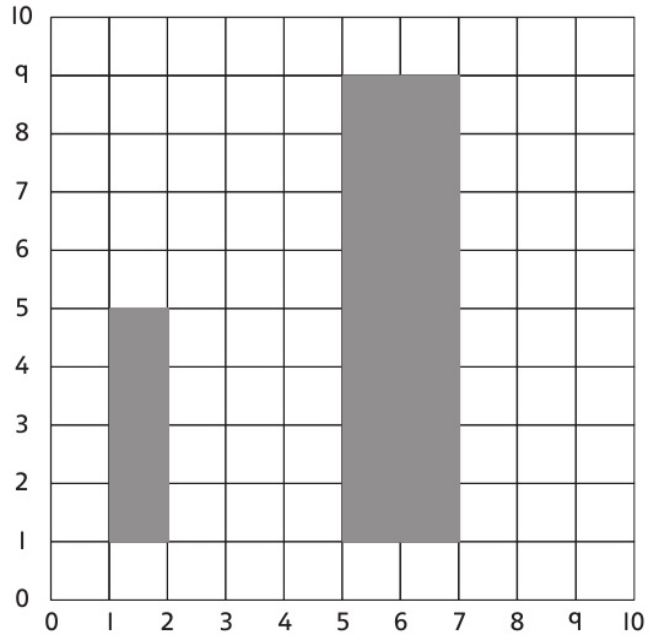
Fill colour:



7. Vector scaling

What scale has been used to create the graphic on the right from the graphic on the left?

.....



8. Plenary quick quiz

Question 1	Question 2	Question 3	Question 4	Question 5
Which of the following is similar to a vector graphic?	True or false? Vectors lose quality when increased in size.	Which of the following is not required to create a vector?	What is used to halve a vector graphic of a rectangle?	X3, Y4 to X6, Y9 are examples of?
<input type="checkbox"/> bitmap <input type="checkbox"/> dot to dot <input type="checkbox"/> a photo <input type="checkbox"/> a sketch	<input type="checkbox"/> true <input type="checkbox"/> false	<input type="checkbox"/> start point <input type="checkbox"/> end point <input type="checkbox"/> line type <input type="checkbox"/> resolution	<input type="checkbox"/> scaling <input type="checkbox"/> resolving <input type="checkbox"/> pixelating <input type="checkbox"/> reversing	<input type="checkbox"/> pixels <input type="checkbox"/> algorithms <input type="checkbox"/> coordinates <input type="checkbox"/> 3D shapes

Creating a vector graphic

Learning objectives

1. Understand how a graphic can be created using multiple points.
2. Demonstrate understanding of how to create a simple recognisable vector graphic.

1. Key word definitions

Tick the word or phrase when you know its meaning.

algorithm

image quality

vector

2. Starter activity

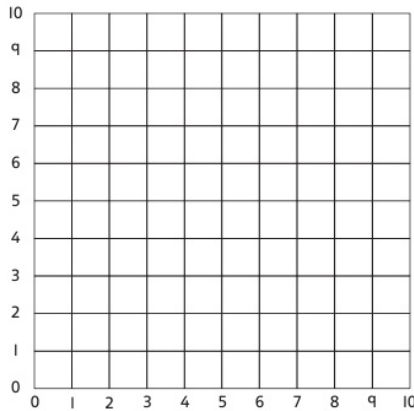
Describe how an algorithm can be used to create a vector graphic.

.....

.....

3. Simple graphic

Create a simple graphic using the following instructions:

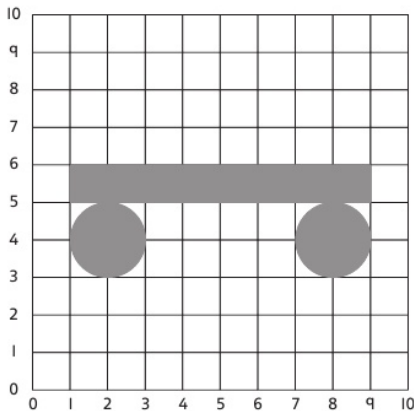


Shape 1:
X1,Y1 X1,Y9 X9,Y9 X9,Y1

Shape 2:
X5, Y5, R3

4. Missing coordinates

Complete the missing coordinates to create the graphic below.



Shape 1:
X2, Y4, R1

Shape 2:
X_,Y_ X_,Y_ X_,Y_ X_,Y_

Shape 3:
X8, Y4, R1

5. Character vector art

Create a character graphic using the following instructions.

Shape 1:

X2, Y8, R1

Shape 2:

X8, Y8, R1

Shape 3:

X5, Y5, R4

Shape 4:

X4, Y6, R1

Shape 5:

X4, Y6, R0.5

Shape 6:

X6, Y6, R1

Shape 7:

X6, Y6, R0.5

Shape 8:

X5, Y5, R0.5

Line 1:

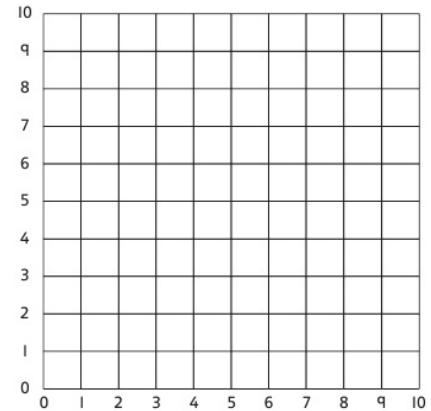
X5, Y4 X5, Y3

Line 2:

X4, Y2, X5, Y3

Line 3:

X5, Y3, X6, Y2



6. Plenary quick quiz

Question 1	Question 2	Question 3	Question 4	Question 5
What does the R in vector instructions stand for?	What is a programming app that can create simple graphics called?	True or false? The horizontal axis is labelled as Y.	When defining a circle, what do the X and Y coordinates refer to?	Name the device that uses coordinates to create graphics.
<input type="checkbox"/> role <input type="checkbox"/> random <input type="checkbox"/> radius <input type="checkbox"/> rectangle	<input type="checkbox"/> Scratch <input type="checkbox"/> Switch <input type="checkbox"/> Scribble <input type="checkbox"/> Itch	<input type="checkbox"/> true <input type="checkbox"/> false	<input type="checkbox"/> circumference <input type="checkbox"/> diameter <input type="checkbox"/> centre <input type="checkbox"/> radius	<input type="checkbox"/> camera <input type="checkbox"/> scanner <input type="checkbox"/> printer <input type="checkbox"/> plotter

Bitmaps

Learning objectives

1. Understand what a bitmap graphic is.
2. Understand the basic structure of a bitmap.
3. Understand the link between resolution and image quality.

1. Key word definitions

Tick the word or phrase when you know its meaning.

 bitmap

 file size

 gradient

 image quality

 pixel

 pixels per inch (PPI)

 resolution

2. Starter activity

Describe what is meant by the term 'bitmap'.

.....

.....

3. What is a bitmap?

Fill in the blanks, using the words below:

pixels	colour	image	detailed
--------	--------	-------	----------

A bitmap is an file made up of dots, or Each pixel can be a different and the more pixels there are, the more the image.

4. Bitmap structure

Draw a line from each term to the matching description:

pixel		relates to the number of pixels within an image
resolution		describes the change from one colour to another
gradient		short for picture elements

5. Resolution

Describe the link between resolution and image quality.

.....

.....

6. Image quality

Describe what will happen to the quality of an image if the physical size of a bitmap is increased.

.....

.....

7. Bitmap file types

List three file types that are based on bitmaps.

1.
2.
3.

8. Plenary quick quiz

Question 1	Question 2	Question 3	Question 4	Question 5
Which device is commonly used to create bitmap images?	Which of the following is not a bitmap file?	What is fading from black to white known as?	What does PPI stand for?	What resolution do modern games consoles have?
<input type="checkbox"/> modem <input type="checkbox"/> router <input type="checkbox"/> plotter <input type="checkbox"/> camera	<input type="checkbox"/> DXF <input type="checkbox"/> BMP <input type="checkbox"/> JPG <input type="checkbox"/> TIFF	<input type="checkbox"/> resolution <input type="checkbox"/> gradient <input type="checkbox"/> bitmap <input type="checkbox"/> vector	<input type="checkbox"/> patterns per image <input type="checkbox"/> pixels per image <input type="checkbox"/> pictures per inch <input type="checkbox"/> pixels per inch	<input type="checkbox"/> 2K <input type="checkbox"/> 4K <input type="checkbox"/> 8K <input type="checkbox"/> 16K