

# **GEMS Winchester School Dubai**



## **Year 9 Progress Test Revision**



## English

### Topic / Skill:

Reading :  
Narrative  
Non Narrative

### Notes / revision links

- Retrieval  
(extracting key information from the text read)
- Inference  
(drawing conclusion on the basis of text read)
- Authors technique  
(knowing the purpose, audience and context of writing)
- Complex Inference  
( knowing how choice of words, leads to a particular meaning)

NOTE : Pls choose Reading Option Booklet Year 9 from the first link below. Challenge your child to answer Level (4-6).

<http://www.satspapers.org/KS3%20test%20papers.htm>

From the below link practice test (9-12) Reading Comprehension Passages.

<https://www.majortests.com/sat/reading-comprehension.php>

### Sample Questions

**Q14** Think about the whole passage. Which of the following does the writer use to make the approach of the stranger more frightening?

Choose the **best two**.

sound of breathing

noise of the rusty fence

sound of gasping

dogs barking

the lack of light

### Model Answers

Sound of Breathing and Lack of Light.



Topic / Skill:

Spelling Punctuation and Grammar

Notes / revision links

Spelling patterns and rules set out in KS 1 and 2

Apostrophes, Inverted Quotes, Commas, Semicolons, Colons, Brackets, Capitals Full stops.

Tenses, Subject Verb Agreement, Countable, Conjunctions, Prepositions, Transition words (Connectors)

[SPaG Practise Resources](#)

Sample Questions

Use appropriate punctuation.

Pasta [ ] a large family of shaped [ ] dried wheat pastes [ ] is a basic staple in many countries. Its origins are obscure. Rice pastes were known very early in China [ ] pastes made of wheat were used in India and Arabia long before they were introduced into Europe in the 11th or 12th century. According to legend [ ] Marco Polo brought a pasta recipe with him from Asia in 1295. Pasta quickly became a major element in the Italian diet [ ] and its use spread throughout Europe.

Pasta is made from durum wheat flour [ ] which makes a strong [ ] elastic dough. Hard durum wheat has the highest wheat protein value. The flour is mixed with water [ ] kneaded to form a thick paste [ ] and then forced through perforated plates or dies that shape it into one of more than 100 different forms. The macaroni die is a hollow tube with a steel pin in its center [ ] the spaghetti die lacks the steel pin and produces a solid cylinder of paste. Ribbon pasta is made by forcing the paste through thin slits in a die [ ] shells and other curved shapes are produced with more intricate dies. The shaped dough is dried carefully to reduce the moisture content to about 12 percent [ ] and properly dried pasta should remain edible almost indefinitely. Pastas can be colored with spinach or beet juice. The addition of egg produces a richer [ ] yellower pasta that is usually made in noodle form and is often sold undried.

Model Answers

Pasta, a large family of shaped, dried wheat pastes, is a basic staple in many countries. Its origins are obscure. Rice pastes were known very early in China; pastes made of wheat were used in India and Arabia long before they were introduced into Europe in the 11th or 12th century. According to legend, Marco Polo brought a pasta recipe with him from Asia in 1295. Pasta quickly became a major element in the Italian diet, and its use spread throughout Europe. Pasta is made from durum wheat flour, which makes a strong, elastic dough. Hard durum wheat has the highest wheat protein value. The flour is mixed with water, kneaded to form a thick paste, and then forced through perforated plates or dies that shape it into one of more than 100 different forms. The macaroni die is a hollow tube with a steel pin in its center; the spaghetti die lacks the steel pin and produces a solid cylinder of paste. Ribbon pasta is made by forcing the paste through thin slits in a die; shells and other curved shapes are produced with more intricate dies. The shaped dough is dried carefully to reduce the moisture content to about 12 percent, and properly dried pasta should remain edible almost indefinitely. Pastas can be colored with spinach or beet juice. The addition of egg produces a richer, yellower pasta that is usually made in noodle form and is often sold undried.



## Maths

Topic / Skill:

Adding and subtracting Fractions

Notes / revision links

[Youtube Clip](#)

[Lesson from mymaths](#)

Sample Questions

Work out and simplify the following.

a)  $\frac{3}{8} + \frac{1}{6}$

..... | (2)

b)  $4\frac{2}{7} - \frac{4}{5}$

..... | (2)

Model Answers

Work out and simplify the following.

a)  $\frac{3}{8} + \frac{1}{6}$

$\frac{13}{24}$  ..... | (2)

b)  $4\frac{2}{7} - \frac{4}{5}$

$3\frac{17}{25}$  ..... | (2)



# Year 9 Progress Test revision

Topic / Skill:

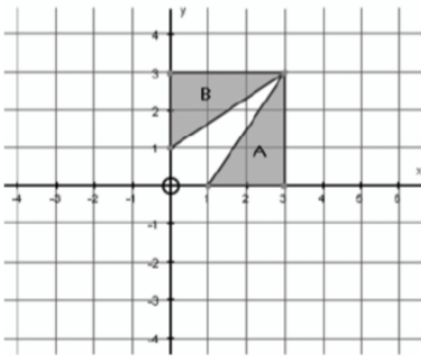
Transformations

Notes / revision links

[Lesson from mymaths](#)

Sample Questions

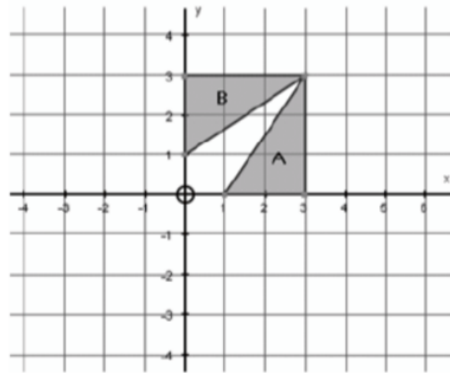
Describe fully the single transformation which maps shape A on shape B.



.....  
.....

Model Answers

Describe fully the single transformation which maps shape A on shape B.



*Reflection at  $y=x$*   
.....  
.....



# Year 9 Progress Test revision

Topic / Skill:

Standard Form

Notes / revision links

[Lesson from mymaths \(large numbers\)](#)

[Lesson from mymaths \(small numbers\)](#)

Sample Questions

Given two numbers in standard form  $a = 2.8 \times 10^5$  and  $b = 1.6 \times 10^6$

a. Compare  $a$  and  $b$  using inequality symbol.  $a$  .....  $b$

b. Find without using your calculator (and hence showing all your working) the value of  $a \div b$  giving your answer in standard form correct to 2 significant figures.

Model Answers

Given two numbers in standard form  $a = 2.8 \times 10^5$  and  $b = 1.6 \times 10^6$

a. Compare  $a$  and  $b$  using inequality symbol.  $a$   $\lt$   $b$

b. Find without using your calculator (and hence showing all your working) the value of  $a \div b$  giving your answer in standard form correct to 2 significant figures.

$$1.8 \times 10^{-1}$$



# Year 9 Progress Test revision

Topic / Skill:

Expanding brackets

Notes / revision links

[Lesson from mymaths](#)

Sample Questions

Determine which of the following expression is equivalent to  $(x + 2y)(x - y)$ .

- a.  $x^2 + 2xy - 2y^2$
- b.  $x^2 + xy - 2y^2$
- c.  $x^2 - xy - 2y^2$
- d.  $x^2 + xy + 2y^2$
- e.  $x^2 - 2y^2 + xy$
- f.  $xy + x^2 - 2y^2$

Model Answers

Determine which of the following expression is equivalent to  $(x + 2y)(x - y)$ .

- a.  $x^2 + 2xy - 2y^2$
- b.**  $x^2 + xy - 2y^2$
- c.  $x^2 - xy - 2y^2$
- d.  $x^2 + xy + 2y^2$
- e.**  $x^2 - 2y^2 + xy$
- f.**  $xy + x^2 - 2y^2$



# Year 9 Progress Test revision

Topic / Skill:

Nets of 3D shapes

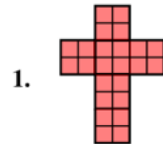
Notes / revision links

[Youtube clip](#)

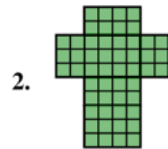
[Lesson from mymaths](#)

Sample Questions

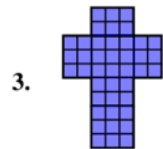
Match the nets with the type of cuboids.



A. rectangular based cuboid



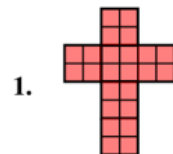
B. cube



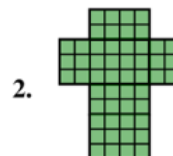
C. square based cuboid

Model Answers

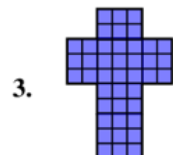
Match the nets with the type of cuboids.



A. rectangular based cuboid



B. cube



C. square based cuboid





# Year 9 Progress Test revision

Topic / Skill:

Percentages

Notes / revision links

[Youtube clip](#)

[Lesson from mymaths \(percentage increase and decrease\)](#)

Sample Questions

A baby weighs 3.5 kg at birth. After 6 weeks the baby's weight has increased to 4.2 kg.

What is the baby's percentage increase in weight?

Model Answers

$$\begin{aligned}\text{The actual increase} &= 4.2 \text{ kg} - 3.5 \text{ kg} \\ &= 0.7 \text{ kg}\end{aligned}$$

$$\begin{aligned}\text{The percentage increase} &= \frac{0.7}{3.5} \times 100\% \\ &= 20\%\end{aligned}$$



# Year 9 Progress Test revision

Topic / Skill:

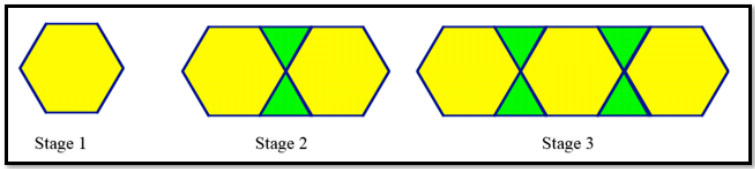
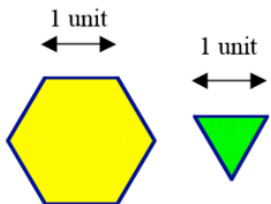
Sequences

Notes / revision links

[Youtube clip](#)

Sample Questions

The edges of the regular hexagon and the regular triangle have a measure of one unit each. Therefore, the perimeter of the hexagon is 6 units and the perimeter of the triangle is 3 units.

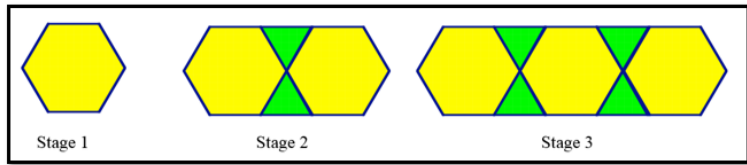
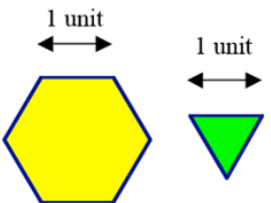


Find the following.

- a. The perimeter at Stage 10 .....
- b. The formula for the perimeter of the nth term .....

Model Answers

The edges of the regular hexagon and the regular triangle have a measure of one unit each. Therefore, the perimeter of the hexagon is 6 units and the perimeter of the triangle is 3 units.



Find the following.

- a. The perimeter at Stage 10 ..... **42**
- b. The formula for the perimeter of the nth term .....  **$4n + 2$**



Topic / Skill:

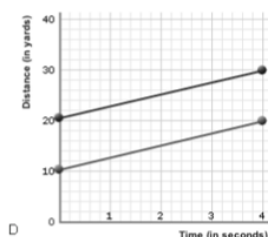
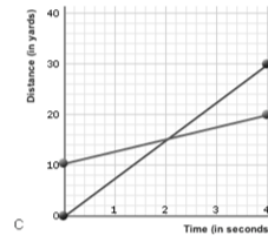
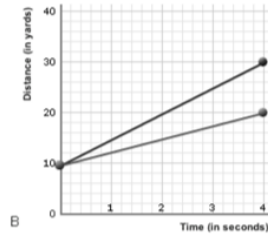
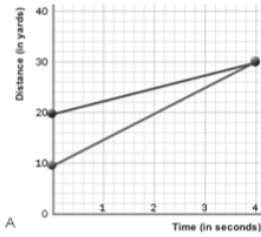
Interpreting Graphs.

Notes / revision links

[Lesson from mymaths](#)

Sample Questions

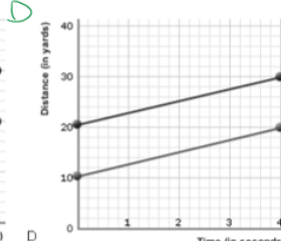
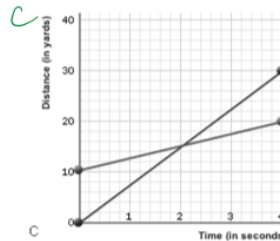
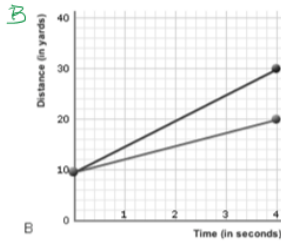
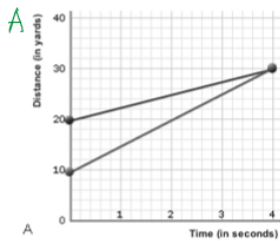
Which of the following graphs shows runners moving at the same speed? Explain/show your work



Explanation .....

Model Answers

Which of the following graphs shows runners moving at the same speed? Explain/show your work



Explanation *D, because they are parallel* .....



Topic / Skill:

Scatter Graphs

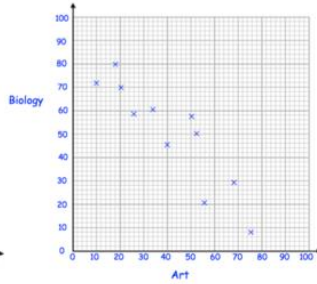
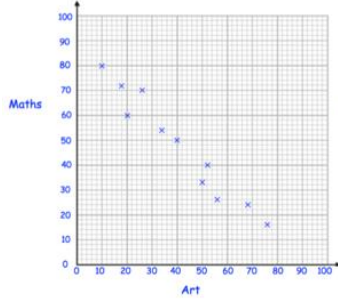
Notes / revision links

[Youtube clip](#)

[Lesson from mymaths](#)

Sample Questions

9. Eleven students sit examinations in Art, Maths and Biology.  
Information about the results are shown in the scatter graphs below.



(a) Describe the correlation between the maths scores and art scores.

.....  
(1)

(b) Describe the correlation between the biology scores and art scores.

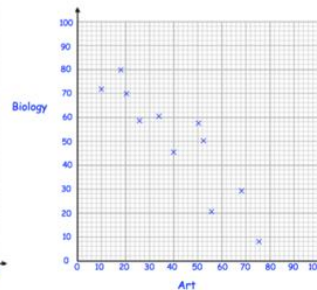
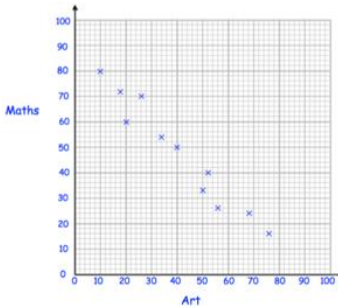
.....  
(1)

(c) Describe the correlation between the biology scores and maths scores.

.....  
(1)

Model Answers

9. Eleven students sit examinations in Art, Maths and Biology.  
Information about the results are shown in the scatter graphs below.



(a) Describe the correlation between the maths scores and art scores.

Negative Correlation  
.....  
(1)

(b) Describe the correlation between the biology scores and art scores.

Negative Correlation  
.....  
(1)

(c) Describe the correlation between the biology scores and maths scores.

Positive Correlation  
.....  
(1)



# Year 9 Progress Test revision

Topic / Skill:

Sequences

Notes / revision links

[Youtube \(Nth term\)](#)

[Lesson from mymaths](#)

Sample Questions

A sequence of number is shown below

**8 , 15, 22, 29, ...**

- What is the 10<sup>th</sup> term of the sequence?
- Find the expression for the nth term of the sequence.
- Explain why 96 will not be a term in this sequence.

Model Answers

A sequence of number is shown below

**8 , 15, 22, 29, ...**

- What is the 10<sup>th</sup> term of the sequence? **71**
- Find the expression for the nth term of the sequence.  **$7n + 1$**
- Explain why 96 will not be a term in this sequence.  
**13th term is 91, 14th term is 99**



# Year 9 Progress Test revision

Topic / Skill:

Function Machines

Notes / revision links

[Youtube clip](#)

[Lesson from mymaths](#)

Sample Questions

(a) A function is represented by the following function machine.

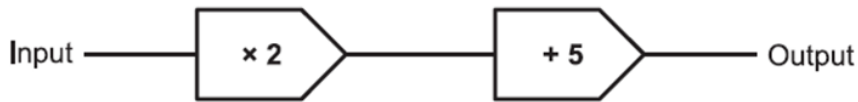


- (i) A number is input into the machine.  
The output is used as a new input.  
The second output is 11.  
Work out the number that was the first input.

(a)(i) ..... [2]

Model Answers

(a) A function is represented by the following function machine.



- (i) A number is input into the machine.  
The output is used as a new input.  
The second output is 11.  
Work out the number that was the first input.

$11 - 5 = 6$   
 $6 \div 2 = 3$

(a)(i) 3 ..... [2]



# Year 9 Progress Test revision

Topic / Skill:

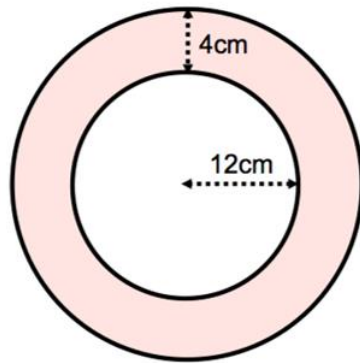
Area of a circle

Notes / revision links

[Lesson from mymaths](#)

Sample Questions

Shown below is a circular photo surrounded by a frame.

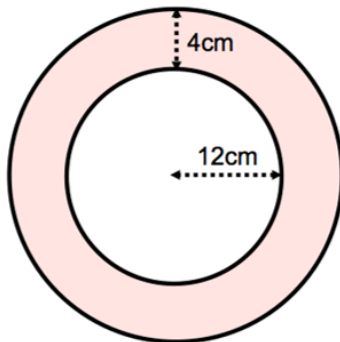


The photo has radius 12cm.  
The frame has width 4cm.

Work out area of the frame.  
This area is shaded in the diagram.

Model Answers

Shown below is a circular photo surrounded by a frame.



The photo has radius 12cm.  
The frame has width 4cm.

Work out area of the frame.  
This area is shaded in the diagram.

$$\begin{aligned} A &= \pi(14)^2 & A &= \pi(12)^2 \\ &= 256\pi \text{ cm}^2 & &= 144\pi \text{ cm}^2 \\ 256\pi \text{ cm}^2 - 144\pi \text{ cm}^2 &= \underline{\underline{112\pi \text{ cm}^2}} \end{aligned}$$



# Year 9 Progress Test revision

Topic / Skill:

Similar Shapes

Notes / revision links

[Youtube clip](#)

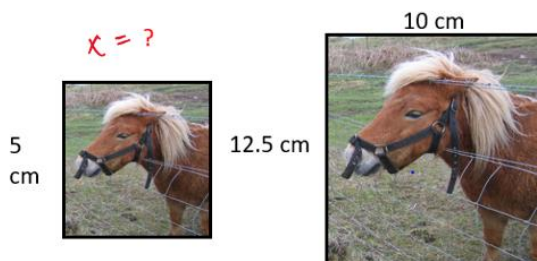
Sample Questions

The second photograph is the enlargement of the first. Find the length of the missing side?



Model Answers

The second photograph is the enlargement of the first. Find the length of the missing side?



$$\frac{5 \text{ cm}}{12.5 \text{ cm}} = \frac{x}{10 \text{ cm}}$$

$$\frac{12.5 \text{ cm} \times x}{12.5 \text{ cm}} = \frac{50 \text{ cm}^2}{12.5 \text{ cm}}$$

$$x = \underline{\underline{4 \text{ cm}}}$$





# Year 9 Progress Test revision

Topic / Skill:

Volume of a cylinder

Notes / revision links

[Youtube clip](#)

[Lesson from mymaths](#)

Sample Questions

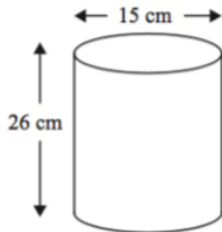


Diagram NOT accurately drawn

A cylinder has a diameter of 15 cm and a height of 26 cm.

Work out the volume of the cylinder. Give your answer correct to 3 significant figures.

.....  $cm^3$

Model Answers

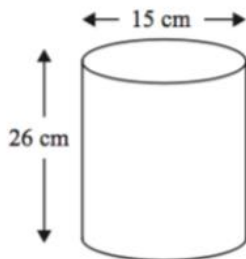


Diagram NOT accurately drawn

$$r = 7.5$$
$$V = \pi (7.5)^2 (26)$$
$$= 4594.579256$$

A cylinder has a diameter of 15 cm and a height of 26 cm.

Work out the volume of the cylinder. Give your answer correct to 3 significant figures.

.....  $4590 \text{ } cm^3$



# Year 9 Progress Test revision

Topic / Skill:

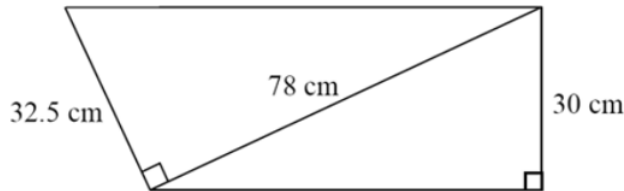
Pythagoras Theorem

Notes / revision links

[Pythagoras Theorem](#)

Sample Questions

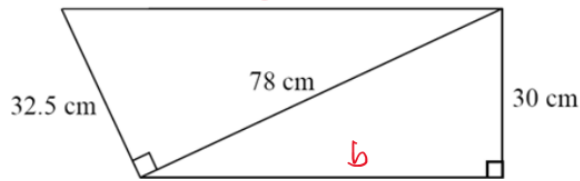
Find the perimeter of the trapezium below.



Answer: \_\_\_\_\_ cm [4]

Model Answers

Find the perimeter of the trapezium below.



$$32.5 + 30 + 84.5 + 72 = 219 \text{ cm}$$

$$a^2 = 32.5^2 + 78^2$$

$$a = \sqrt{32.5^2 + 78^2}$$

$$a = 84.5$$

Answer: \_\_\_\_\_ <sup>219</sup> cm [4]

$$78^2 = 30^2 + b^2$$

$$78^2 - 30^2 = b^2$$

$$72 = b$$



# Year 9 Progress Test revision

Topic / Skill:

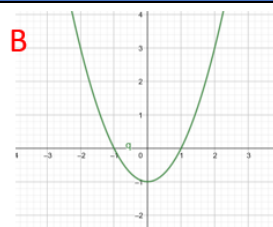
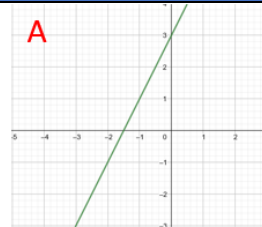
Graphs

Notes / revision links

[Revision lesson from mymaths \(linear graphs\)](#)

[Revision tool from mymaths](#)

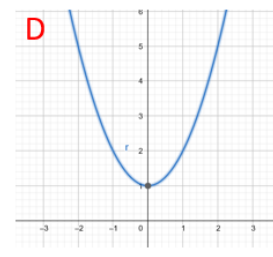
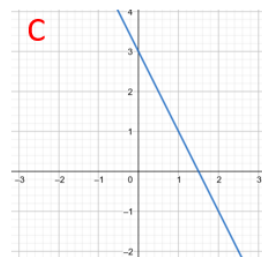
## Sample Questions



Match each graph to the corresponding equation and table of values. Write your answer inside the box.

$y = x^2 + 1$

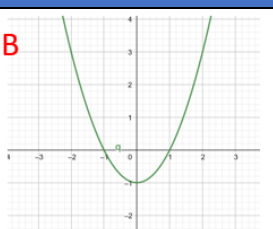
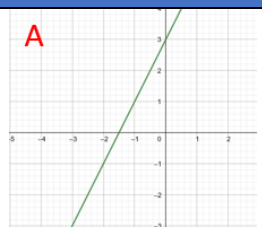
$y = 2x + 3$



x	-1	0	1	2
y	5	3	1	-1

x	-2	-1	0	1	2	3
y	3	0	-1	0	3	0

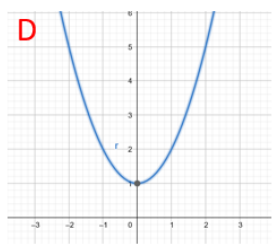
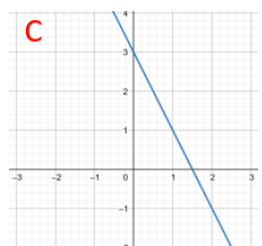
## Model Answers



Match each graph to the corresponding equation and table of values. Write your answer inside the box.

**D**  $y = x^2 + 1$

**A**  $y = 2x + 3$



**C**

x	-1	0	1	2
y	5	3	1	-1

**B**

x	-2	-1	0	1	2	3
y	3	0	-1	0	3	0



# Year 9 Progress Test revision

Topic / Skill:

Angles in a polygon

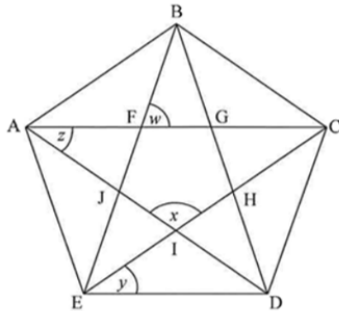
Notes / revision links

[Lesson from mymaths](#)

[Youtube clip](#)

Sample Questions

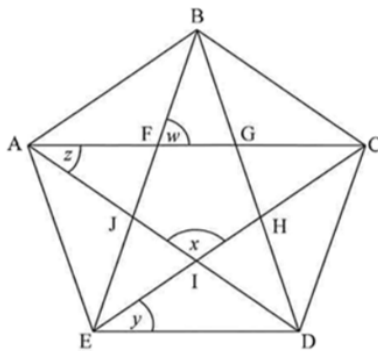
The diagram below shows a regular pentagon ABCDE. Within this regular pentagon a regular pentagram (a 5-pointed star) has been drawn, which in turn contains another regular pentagon FGHIJ.



- a. Calculate angle BAE.
- b. Name two triangles that are congruent.
- c. Calculate the angle y and angle z.

Model Answers

The diagram below shows a regular pentagon ABCDE. Within this regular pentagon a regular pentagram (a 5-pointed star) has been drawn, which in turn contains another regular pentagon FGHIJ.



- a. Calculate angle BAE.  
 $(5-2) \times 180 = 540$  ,  $540 \div 5 = 108^\circ$
- b. Name two triangles that are congruent.  
*Answers may vary*
- c. Calculate the angle y and angle z.  
 $180 - 108 = 72$        $y = 36$   
 $72 \div 2 = 36$



## Science

Topic / Skill:

The Periodic Table: periods and groups; metals and non-metals

Notes / revision links

<https://www.bbc.co.uk/bitesize/guides/z84wjxs/revision/1>

<https://app.senecalearning.com/dashboard/join-class/9vg07t7c9h> (Sign Up as a Student)

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Sample Questions

Q1

Here is an outline of the Periodic Table.

1	2											3	4	5	6	7	0
Li	Be	H										B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn						

Label the periodic table by writing one word in each box.

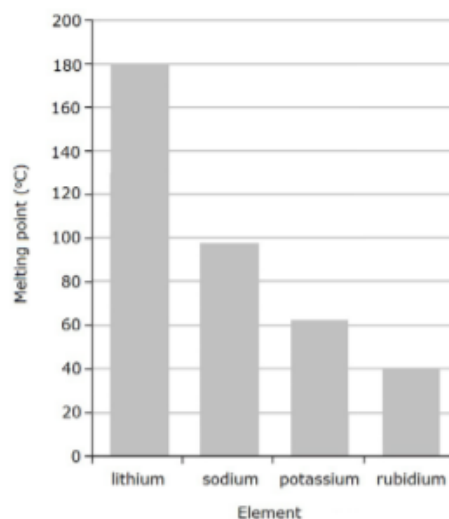
Choose from these words:

group    period    a metal

(3 marks)

Q2

The bar chart below shows the melting points of four elements. The elements are all in Group 1 of the Periodic Table.





# Year 9 Progress Test revision

**a** Complete the sentences below. Use the bar chart to help you.

The element in Group 1 with the highest melting point is \_\_\_\_\_.

The element with the lowest melting point shown on the bar chart is \_\_\_\_\_.

The element with a melting point of 180 °C is \_\_\_\_\_ and the element with a melting point of 64 °C is \_\_\_\_\_. (4 marks)

**b** The table below shows the melting points and boiling points of two elements.

Element	Melting point (°C)	Boiling point (°C)
rubidium	39	688
caesium	29	690

**i** Write down the melting point of rubidium.

\_\_\_\_\_ °C (1 mark)

**ii** Calculate the difference between the boiling point of rubidium and the boiling point of caesium. Show your working.

\_\_\_\_\_  
\_\_\_\_\_ (2 marks)

## Model Answers

Q1

horizontal row – period		3
vertical column – group		
magnesium – metal		

Q2

lithium, rubidium, lithium, potassium		4	
39 °C			1
690–688 = 2 °C			2



# Year 9 Progress Test revision

Topic / Skill:

Differences between atoms, elements and compounds

Notes / revision links

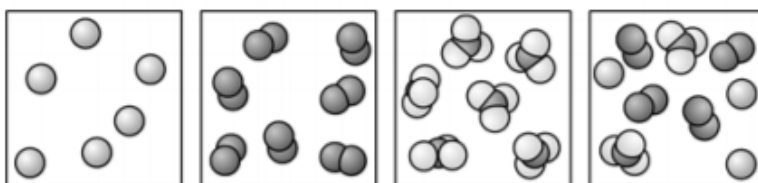
<https://app.senecalearning.com/dashboard/join-class/9vg07t7c9h> (Sign Up for a free Student Account)

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Sample Questions

Q1

In the diagrams below, each sphere represents one atom. Identical spheres represent atoms of the same element.



A

B

C

D

a State which diagram shows molecules of one compound only.

\_\_\_\_\_ (1 mark)

b State which diagram shows an element that exists as single atoms.

\_\_\_\_\_ (1 mark)

c State which diagram shows molecules of one element only.

\_\_\_\_\_ (1 mark)

d State which diagram represents a mixture of a compound and two elements.

\_\_\_\_\_ (1 mark)

Q2

Complete the table below.

Name	Formula	Elements in compound
	NaCl	
	NO <sub>2</sub>	
magnesium sulfate	MgSO <sub>4</sub>	

(5 marks)



# Year 9 Progress Test revision

## Model Answers

Q1

C	1
A	1
B	1
D	1

Q2

sodium chloride – sodium and chlorine nitrogen dioxide – nitrogen and oxygen magnesium, sulfur, oxygen	5
--	---





# Year 9 Progress Test revision

Topic / Skill:

The Structure of the Earth

Notes / revision links

<https://app.senecalearning.com/dashboard/join-class/9vg07t7c9h> (Sign Up for a free Student Account)

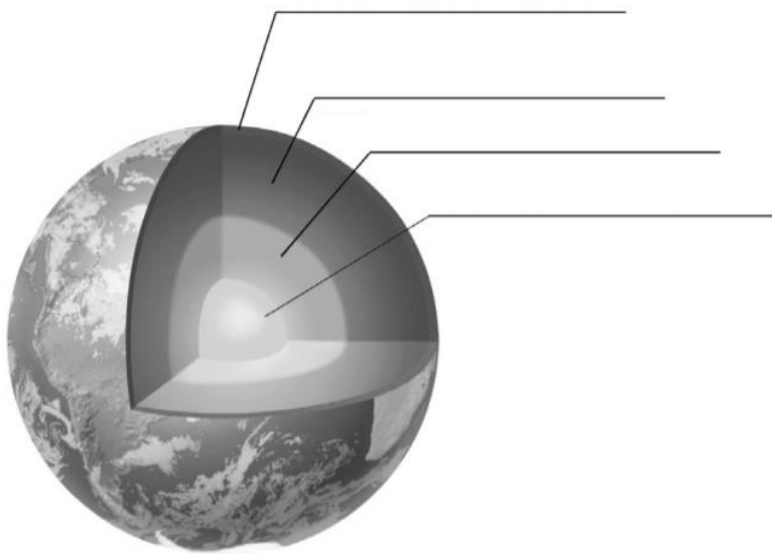
[Revision Monkey KS3 Science Playlist](#)

Sample Questions

Label the diagram by writing one word or phrase in each box.

Choose from these words:

mantle    crust    inner core    outer core



(3 marks)

Model Answers

From centre of Earth:  
inner core, outer core, mantle, crust

3



# Year 9 Progress Test revision

Topic / Skill:

The carbon cycle

Notes / revision links

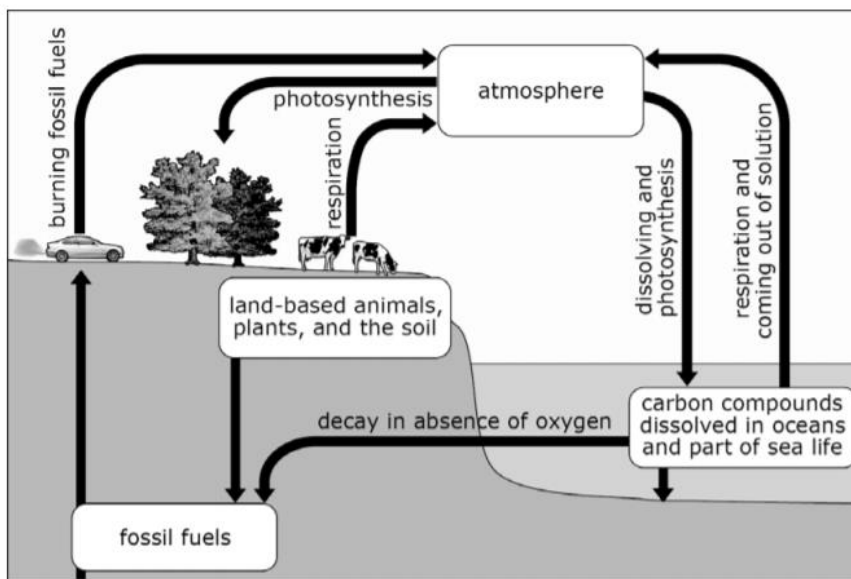
<https://app.senecalearning.com/dashboard/join-class/9vg07t7c9h> (Sign Up for a free Student Account)

[Revision Monkey KS3 Science Playlist](#)

Sample Questions

Scientists sometimes talk about open-loop and closed-loop systems.  
An open-loop system is where different things can enter and leave the system.  
A closed-loop system is where different things cannot enter or leave the system.

Look at the diagram of the carbon cycle below.



Suggest **one** reason for, and **one** reason against this diagram showing a **closed-loop system**.

Model Answers

**Arguments for closed-loop system. One from:**

No arrows shown in or out of carbon cycle  
Carbon released as carbon dioxide is used up by plants or stored in fossil fuels, oceans or rocks

**Arguments against a close-loop system. One from:**

Carbon storage is over millions of years so could be regarded as an output/input  
Burning fossil fuels releases carbon dioxide much faster than fossil fuels are made  
So levels of carbon dioxide in the atmosphere could be changing



# Year 9 Progress Test revision

Topic / Skill:

Simple techniques for separating mixtures: filtration, evaporation, distillation and chromatography.

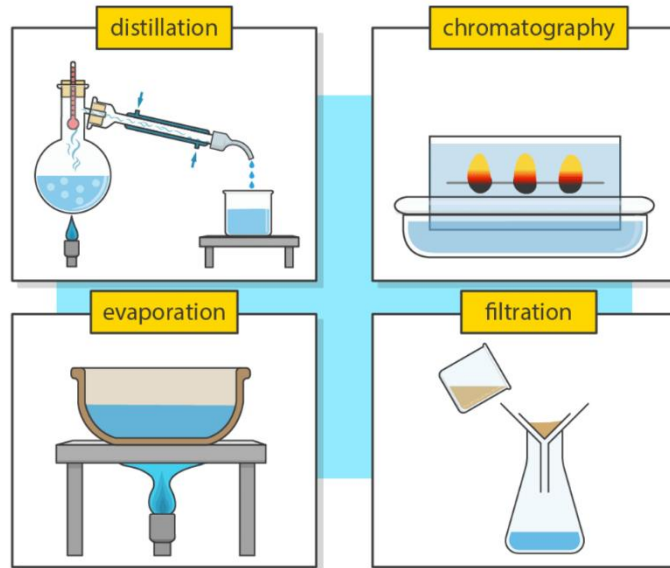
Notes / revision links

<https://app.senecalearning.com/dashboard/join-class/9vg07t7c9h> (Sign Up for a free Student Account)

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Sample Questions

Q1



Which method of separation can be used to remove the liquid from a solution, leaving behind the soluble solid?

distillation

chromatography

evaporation

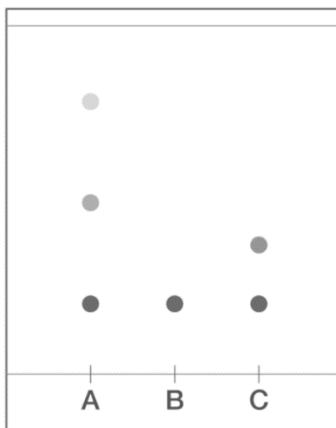
filtration



Q2

A student used paper chromatography to investigate the colours in three different flowers (A, B and C).

Student's Chromatogram



Which two of the following conclusions can the student draw from their results?

All of the flowers had at least one colour in common with each other.

Flower A and flower C had two colours in common with each other.

Flower A contains 3 different colours.

Flower B contains 2 colours.

## Model Answers

Q1

**Correct:** Correct.

A soluble solid can be separated from a solution by using **evaporation**. This will leave the solid in the evaporating dish and the liquid will evaporate off.

Q2

**Correct:** Correct.

The student can conclude that all of the flowers had at least one colour in common and that flower A contains 3 different colours.

**Incorrect:** Incorrect.

- Flower B contains one colour.
- Flower A and flower C have only one colour in common.



# Year 9 Progress Test revision

Topic / Skill:

Balanced and unbalanced forces

Notes / revision links

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Sample Questions

Q1

## Densities of Some Common Substances

substance	density (kg/m <sup>3</sup> )
cardboard	700
wood	850
water	1,000
aluminium	2,700
lead	11,300
gold	19,300

An object sinks if it has a higher density than the fluid it's placed into. Which of the materials in the table will sink in water?

aluminium

cardboard

gold

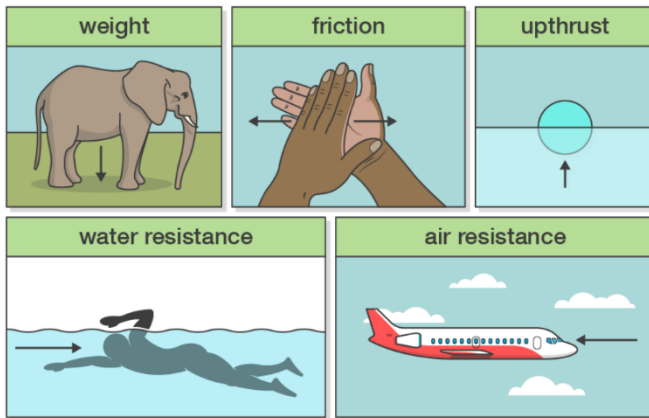
lead

wood



# Year 9 Progress Test revision

Q2



Which three of the following are resistive forces?

- weight
- friction
- upthrust
- water resistance
- air resistance

## Model Answers

Q1

**Correct:** Correct.

Aluminium, gold and lead are more dense than water, so they will sink in water.

**Incorrect:** Incorrect.

Which materials have densities that are greater than  $1,000 \text{ kg/m}^3$ ?

Q2

**Correct:** Correct.

Resistive forces include friction, air resistance and water resistance.

**Incorrect:** Incorrect.

Upthrust and weight are not resistive forces.



# Year 9 Progress Test revision

Topic / Skill:

Pressure in liquids, increasing with depth; up thrust effects, floating and sinking

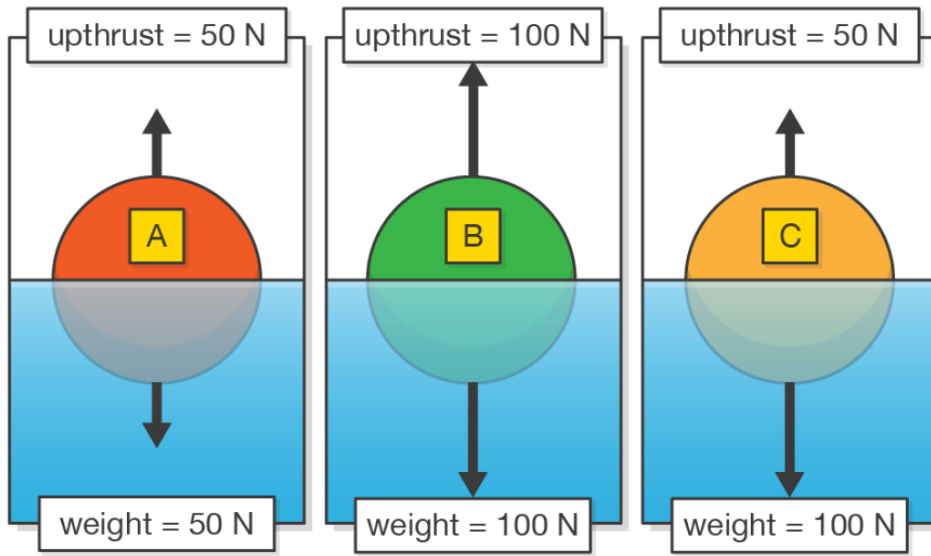
Notes / revision links

<https://app.senecalearning.com/dashboard/join-class/9vg07t7c9h> (Sign Up for a free Student Account)

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Sample Questions

Q1

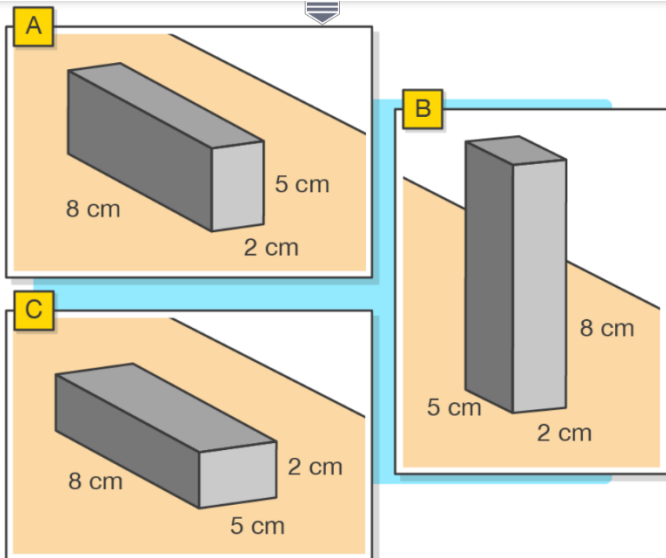


Three balls are placed into the water. Which of these balls will float?

- A
- B
- C



Q2



The block in the diagram can be placed on any of its faces. The weight of the block is the same throughout. In which diagram is the block exerting the least pressure on the surface?

<input type="checkbox"/>	A
<input type="checkbox"/>	B
<input type="checkbox"/>	C

## Model Answers

Q1

**Correct:** Correct.

Balls A and B will float because the weight is equal to the upthrust provided by the water.

**Incorrect:** Incorrect.

An object floats when the upthrust is equal to the weight.

Q2

• **A**

Incorrect.

The face in contact with the surface in position A has an area of  $16 \text{ cm}^2$ . The side with the largest area exerts the least pressure on the surface.

• **B**

Incorrect.

The face in contact with the surface in position B has the smallest area ( $10 \text{ cm}^2$ ). The side with the largest area exerts the least pressure on the surface.

• **C**

No feedback

**Generic feedback:**

**Correct:** Correct.

When the block is in position C, it has the **same force** spread over the **largest surface area**, so exerts the **least pressure**.





# Year 9 Progress Test revision

## Topic / Skill:

Energy transfer from the hotter to the cooler one, through contact (conduction) or radiation; such transfers tending to reduce the temperature difference: use of insulators.

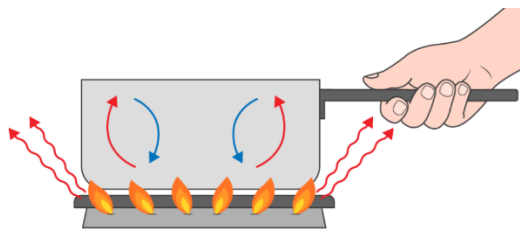
## Notes / revision links

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## Sample Questions

Q1



Which method of heat transfer is taking place through the metal pan handle?

- conduction
- convection
- radiation

Q2



Which method of heat transfer causes heat to be transferred from your hand through the air to an ice lolly? Explain your answer.

## Model Answers

Q1

- **conduction**

*No feedback*

- **convection**

Incorrect.

Fluids transfer heat by convection. The metal pan handle is solid. How is heat transferred through solids?

- **radiation**

Incorrect.

Infra-red waves transfer heat by radiation. The metal pan handle is solid. How is heat transferred through solids?

### Generic feedback:

**Correct:** Correct.

Solids transfer heat by conduction.

Q2

### Generic feedback:

**Open:** Heat is transferred through the air by convection because air is a fluid.



# Year 9 Progress Test revision

Topic / Skill:

Static electricity, Potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current

Notes / revision links

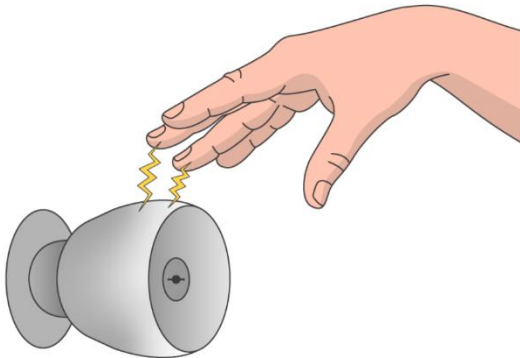
<https://app.senecalearning.com/dashboard/join-class/9vg07t7c9h> (Sign Up for a free Student Account)

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Sample Questions

Q1

Static Shock



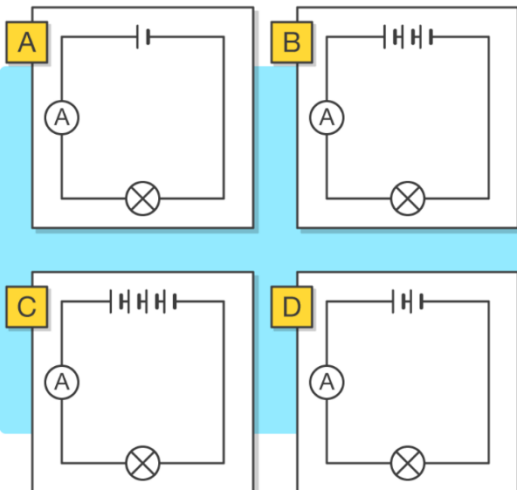
What is a static shock?

a shock at finding yourself statically charged

a large electrical shock that you get from touching a live electrical wire

a small electrical shock that you get from touching a statically charged object

Q2



Order these circuits by the size of their current, from smallest to largest. Assume all of the lamps and cells are identical.

- |   |   |    |
|---|---|----|
| 1 | A | ▲▼ |
| 2 | B | ▲▼ |
| 3 | C | ▲▼ |
| 4 | D | ▲▼ |



## Model Answers

Q1

**Answers and feedback:**

- **a shock at finding yourself statically charged**

Incorrect.

A static shock is caused by an object that is charged with static electricity.

- **a large electrical shock that you get from touching a live electrical wire**

Incorrect.

A static shock is a small electrical shock.

- **a small electrical shock that you get from touching a statically charged object**

Q2

**Answers and feedback:**

- **A**
- **D**
- **B**
- **C**

**Generic feedback:**

**Correct:** Correct.

If you increase the number of cells, the current also increases.

**Incorrect:** Incorrect.

If there are more cells but the same number of components, the current will increase. Start with the circuit that has fewest cells.



# Year 9 Progress Test revision

Topic / Skill:

The magnetic effect of a current, electromagnets, D.C. motors (principles only)

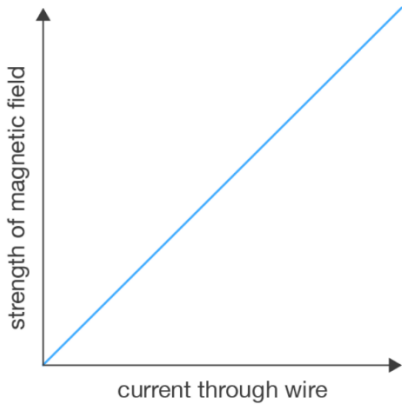
Notes / revision links

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Sample Questions

Graph Showing How Current Affects the Strength of a Magnetic Field



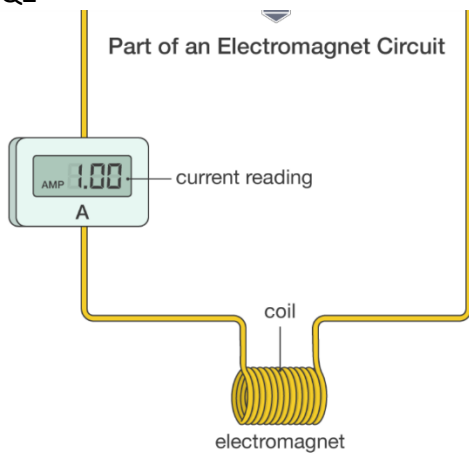
How is the strength of the magnetic field around a wire affected by the current through the wire?

The greater the current through the wire, the lower the strength of the magnetic field.

The greater the current through the wire, the greater the strength of the magnetic field.

The strength of the electromagnet is not affected by the current through the wire.

Q2



How could you increase the strength of the electromagnet shown? Select three options.

- increase the current
- decrease the current
- use a wooden core
- use an iron core
- increase the number of turns
- decrease the number of turns

Model Answers

Q1

**Correct:** Correct.

The greater the current through the wire, the greater the strength of the magnetic field around the wire.

**Incorrect:** Incorrect.

If you increase the current through the wire, the strength of the electromagnet will **increase**.

Q2

**Correct:** Correct.

You can make an electromagnet stronger by using more current, more turns or an iron core.



# Year 9 Progress Test revision

Topic / Skill:

Gravity force, weight = mass x gravitational field strength (g), Gravity forces between Earth and Moon, and between Earth and Sun (qualitative only)

Notes / revision links

<https://app.senecalearning.com/dashboard/join-class/9vg07t7c9h> (Sign Up for a free Student Account)

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Sample Questions

Q1

planet/moon	gravitational field strength (N/kg)
the Moon	1.6
Mercury	3.6
Venus	8.9
Earth	10
Mars	3.8
Jupiter	26.9
Saturn	11.9
Uranus	10.7
Neptune	12.2

$$W = m \times g$$

An alien has a mass of 17 kg. What would its weight be on Saturn?

*Give your answer to one decimal place and include the units N.*



Q2

The astronaut has a mass of 72 kg on the moon.



gravitational field strength = 1.6 N/kg

$$W = m g$$

$W$  = weight

$m$  = mass

$g$  = gravitational field strength

In newtons, what is the weight of the astronaut on the moon?

*Don't include the unit in your answer.*

### Model Answers

Q1

**Correct:** Correct.

$$17 \text{ kg} \times 11.9 \text{ N/kg} = 202.3 \text{ N}$$

Q2

**Correct:** Correct.

The weight of the astronaut on the moon is 115.2 N:

$$72 \times 1.6 = 115.2$$

**Incorrect:** Incorrect.

To calculate weight, use the following equation:

$$W = m \times g$$



# Year 9 Progress Test revision

**Topic / Skill:**

The seasons and the Earth's tilt, day length at different times of the year, in different hemispheres

**Notes / revision links**

<https://app.senecalearning.com/dashboard/join-class/9vg07t7c9h> (Sign Up for a free Student Account)

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**Sample Questions**

Q1

planet	Earth time	
	time taken to orbit the Sun (a year on the planet)	time taken to rotate once on its axis (a day on the planet)
Mercury	88 days	59 days
Venus	225 days	243 days
Earth	365.25 days	24 hours
Mars	687 days	25 hours
Jupiter	12 years	10 hours
Saturn	29 years	11 hours
Uranus	84 years	17 hours
Neptune	164 years	16 hours

Why does Jupiter have a shorter day than the Earth?

Jupiter rotates about its axis more slowly than the Earth.

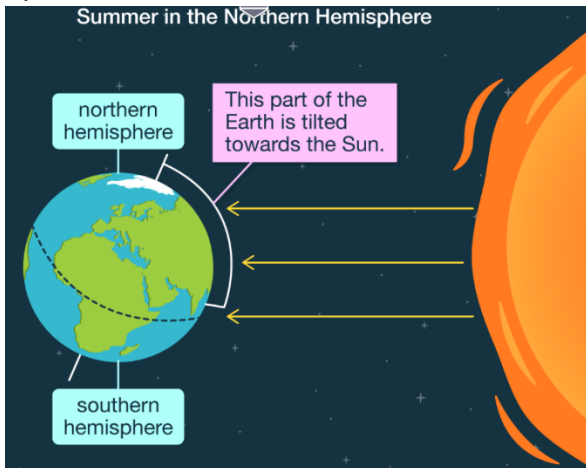
Jupiter rotates about its axis more quickly than the Earth.

Jupiter takes longer than Earth to orbit the Sun.

Jupiter takes less time than Earth to orbit the Sun.



Q2



When the northern hemisphere is tilted \_\_\_\_\_ the Sun, the UK receives \_\_\_\_\_ hours of daylight and \_\_\_\_\_ temperatures. This is because the Sun's rays are more concentrated in the northern hemisphere when the Earth is tilted this way. Sort the words into the correct order to complete the sentence.

1	more	▲▼
2	towards	▲▼
3	higher	▲▼

### Model Answers

Q1

- **Jupiter rotates about its axis more slowly than the Earth.**  
Incorrect.  
The slower the rotation, the **longer** the day.
- **Jupiter rotates about its axis more quickly than the Earth.**  
No feedback
- **Jupiter takes longer than Earth to orbit the Sun.**  
Incorrect.  
The time taken to orbit the Sun affects the length of the **year**.
- **Jupiter takes less time than Earth to orbit the Sun.**  
Incorrect.  
The time taken to orbit the Sun affects the length of the **year**.

#### Generic feedback:

**Correct:** Correct.  
Jupiter has a shorter day than the Earth because it rotates about its axis more quickly.

Q2

#### Answers and feedback:

- **towards**
- **more**
- **higher**

#### Generic feedback:

**Correct:** Correct.  
When the northern hemisphere is tilted towards the Sun, the UK receives more hours of daylight and higher temperatures. This is because the Sun's rays are more concentrated in the northern hemisphere when the Earth is tilted this way.

**Incorrect:** Incorrect.  
When the northern hemisphere is tilted towards the Sun, how does this affect the hours of daylight and the temperature?





# Year 9 Progress Test revision

## Topic / Skill:

Colours and the different frequencies of light, white light and prisms differential colour effects in absorption and diffuse reflection.

## Notes / revision links

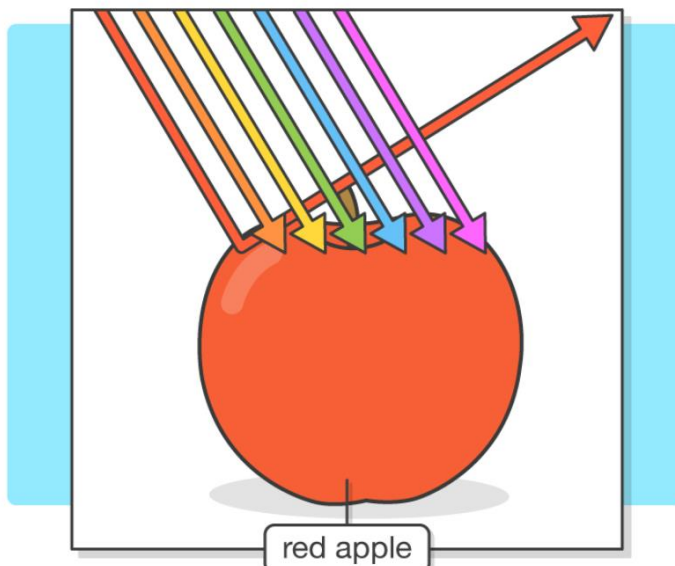
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## Sample Questions

Q1

Red Apple in White Light



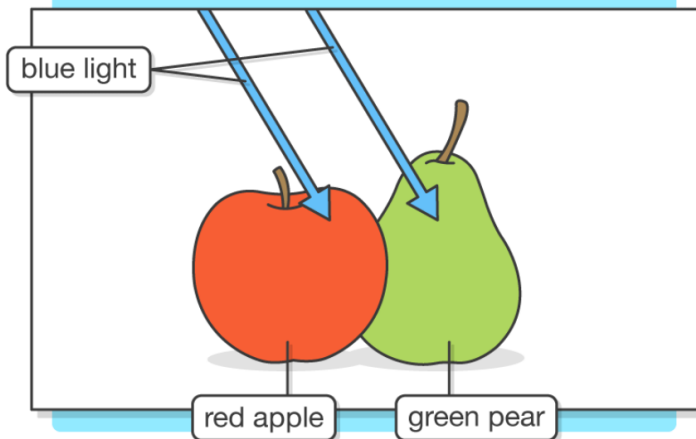
In white light, a red apple appears red because . . .

only red light is reflected by the apple; all of the other colours are absorbed.

only red light is absorbed by the apple; all of the other colours are reflected.



Q2



A blue light is shone onto a green pear and a red apple. What colours would the pear and apple appear? Explain your answer.

## Model Answers

Q1

**Generic feedback:**

**Correct:** Correct.

In white light, a red apple appears red because only red light is reflected by the apple; all of the other colours are absorbed.

Q2

**Generic feedback:**

**Open:** A good answer should include:

- The red apple and the green pear would both appear black.
- Both red and green surfaces absorb blue light.
- No light is reflected by either piece of fruit, so they both look black.



# Year 9 Progress Test revision

Topic / Skill:

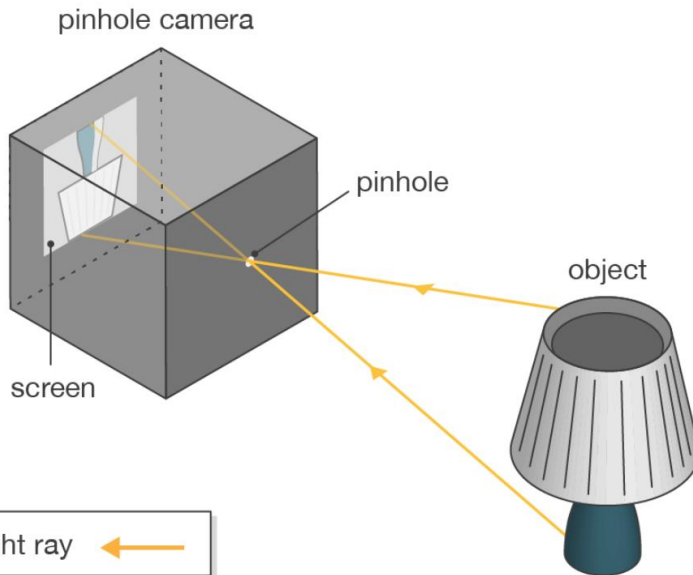
Use of ray model to explain imaging in mirrors, the pinhole camera, the refraction of light and action of a convex lens in focusing (qualitative); the human eye

Notes / revision links

<https://app.senecalearning.com/dashboard/join-class/9vg07t7c9h> (Sign Up for a free Student Account)

## Sample Questions

Q1



How does the image on the screen of a pinhole camera compare to the object being viewed?  
*Select two answers.*

The image is upside down.

The image is the right way up.

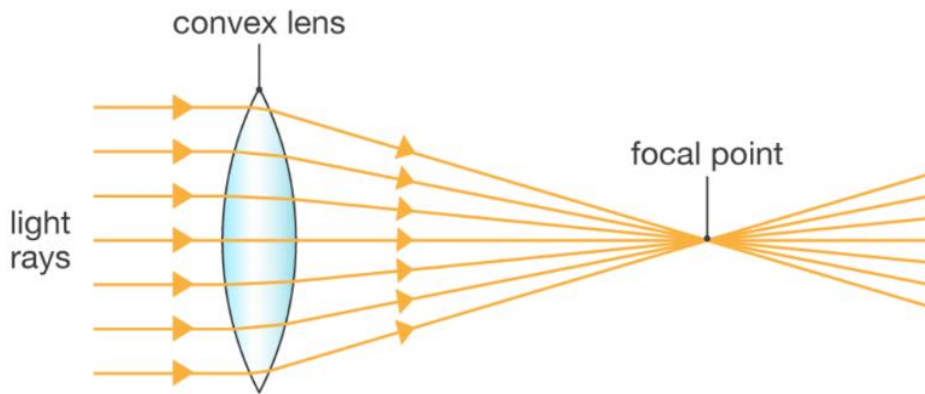
The image is bigger than the object.

The image is smaller than the object.

The image is the same size as the object.



Q2



A focal point is where light rays come together to form a clear image.

What does it mean if light is focused?

The light rays meet at a single point.

The light rays change direction when they pass through a transparent material.

The light rays spread out from a single point.

The light rays change direction when they meet a shiny surface.

### Model Answers

Q1

**Correct:** Correct.

The image formed by a pinhole camera is an upside down and smaller version of the object being viewed.

Q2

**Correct:** Correct.

Focused light rays meet at a single point.

**Incorrect:** Incorrect.

Focused light rays come together at a **focal point** to form a clear image.



# Year 9 Progress Test revision

## Topic / Skill:

A light-year is a unit of astronomical distance.

## Notes / revision links

<https://app.senecalearning.com/dashboard/join-class/9vg07t7c9h> (Sign Up for a free Student Account)

## Sample Questions

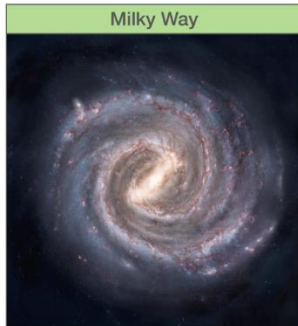
Q1

What is one light year equal to?

the distance travelled by light in one year

the time it takes light to travel from Earth to the Sun

Q2



It takes light 2.5 million years to travel from the Milky Way to our next nearest galaxy, Andromeda. How many million light years away is Andromeda from the Milky Way?  
*Don't include the unit in your answer.*

## Model Answers

Q1

### Answers and feedback:

- **the distance travelled by light in one year**

*No feedback*

- **the time it takes light to travel from Earth to the Sun**

Incorrect.

A light year is a **unit of distance**, not a unit of time.

### Generic feedback:

**Correct:** Correct.

One light year is equal to the distance travelled by light in one year.

Q2

### Generic feedback:

**Correct:** Correct.

Andromeda is 2.5 million light years away from the Milky Way.

**Incorrect:** Incorrect.

One light year is equal to the distance travelled by light in **one year**. How many **million light years away** is Andromeda if it takes light 2.5 million years to travel there?



# Year 9 Progress Test revision

Topic / Skill:

Interdependence of organisms, Food chain and food web.

Notes / revision links

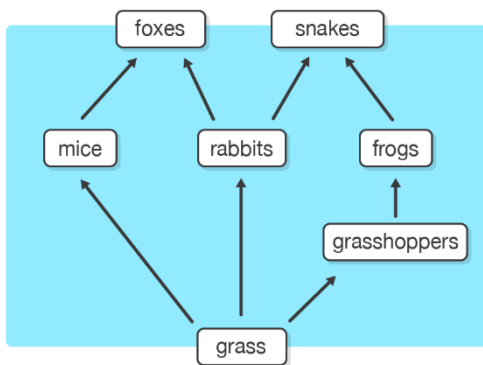
<https://app.senecalearning.com/dashboard/join-class/9vg07t7c9h> (Sign Up as a Student)

<https://www.bbc.co.uk/bitesize/guides/z9pd6yc/revision/1>

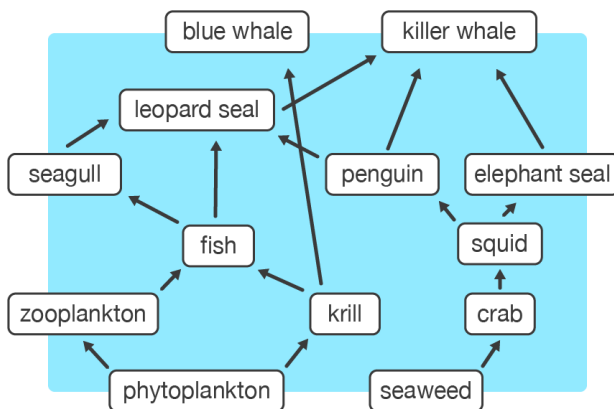
Sample Questions

Q1

Myxomatosis is a viral disease that causes death in rabbits. If myxomatosis was to completely wipe out the rabbit population in this food web, which of these populations would you expect to decrease in size?



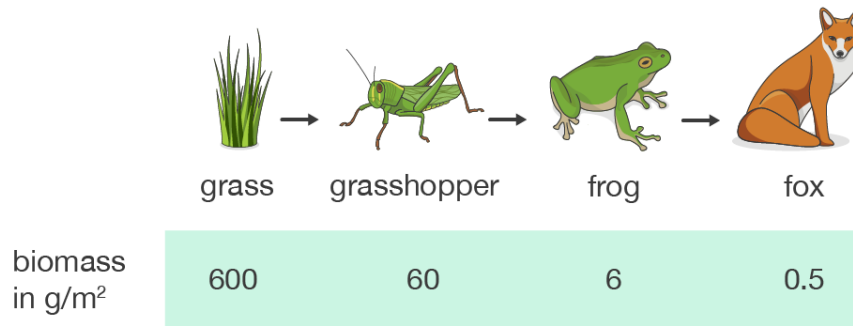
Q2 An ocean storm washes out a large part of the krill population from the habitat represented by this food web. This results in an increase in the number of zooplankton. What is the likely cause of this?





# Year 9 Progress Test revision

Q3. Calculate the percentage efficiency of biomass transfer between trophic level 1 and trophic level 2 of the food chain shown.



## Model Answers

Q1

- foxes
- snakes

Q2

Zooplankton no longer have to compete with the krill for phytoplankton.

Q3.  $60/6 = 10$



# Year 9 Progress Test revision

Topic / Skill:

Human skeletal system

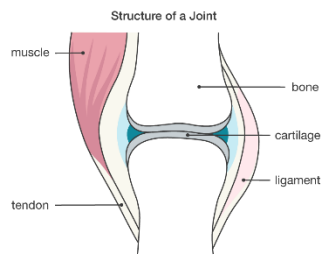
Notes / revision links

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<https://www.bbc.co.uk/bitesize/guides/zpkq7ty/revision/1>

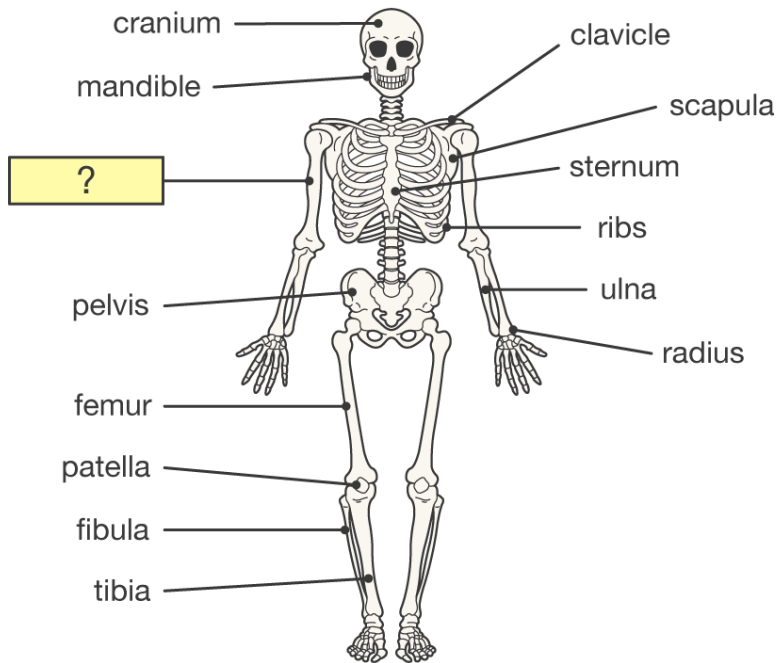
Sample Questions

Q1 What is the name of the smooth tissue on the end of a bone that reduces friction at the joint and acts as a shock absorber?



Q2 What happens to a muscle when it contracts, and how does this move the bone that the muscle is attached to?

Q3 . The long bone from the shoulder to the elbow is called the \_\_\_\_\_.



Q4. Why does ligament damage affect the range of movement of a joint?





## Model Answers

Q1 Cartilage

Q2 .A muscle shortens when it contracts.

- This pulls the attached bone towards the muscle.

Q3. Humerus

Q4.

- Ligaments connect bones at a joint.
- Damage to a ligament can cause bones to become unstable at the joint.
- This can causes pain and swelling that affects movement.

## Topic / Skill:

Respiratory system, Gas exchange

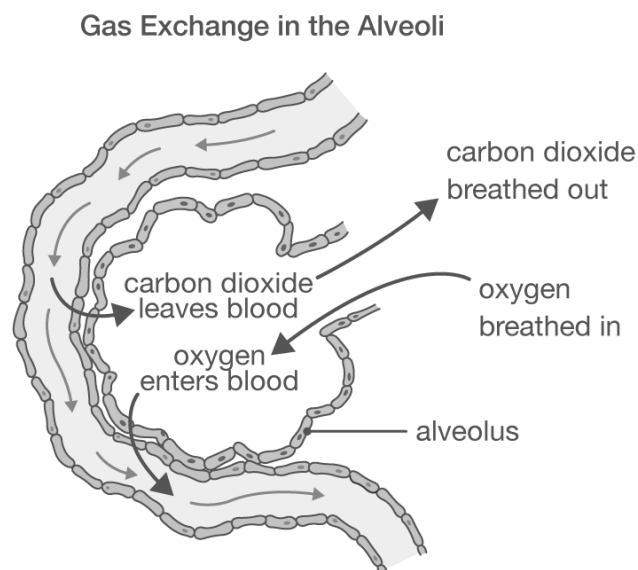
## Notes / revision links

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## Sample Questions

Q1. The surface of the alveoli is an exchange surface. What is an exchange surface?





# Year 9 Progress Test revision

Q2. Look at the image above and answer.

What are features does an efficient exchange surface have.

Q3. Why does carbon dioxide diffuse from the blood in the capillaries into the air in the alveoli?

Q4. Why does the trachea have rings of cartilage in its wall?

## Model Answers

Q1.

An exchange surface is a surface through which substances move.

Q2.

**Correct:** Correct.

An efficient exchange surface has a large surface area, a thin membrane and a good blood supply.

**Incorrect:** Incorrect.

An efficient exchange surface has features that allow substances to move through it easily.

Q3

Carbon dioxide diffuses from the blood in the capillaries into the air in the alveoli because the concentration of carbon dioxide in the blood is higher than the concentration of carbon dioxide in the air.

Q4

The rings of cartilage help keep the airway open.