**Ardrossan Academy**

**Science Faculty**

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**S1 BGE**

**Sports Science**

**Homework Booklet**

**Do not lose or write on this booklet. It should be handed back to your teacher when you are finished with it.**

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| **HOMEWORK** | **Heart** |

The P\_\_\_\_\_\_\_\_\_\_\_\_ A\_\_\_\_\_\_\_\_\_\_

Takes blood to the Lungs\_\_

The Aorta takes blood to the B\_\_\_\_\_\_.



P\_\_\_\_\_\_\_\_

V\_\_\_\_\_\_\_

R\_\_\_\_\_\_

Atrium

L\_\_\_\_\_\_\_

A\_\_\_\_\_\_\_

Right

V\_\_\_\_\_\_\_

L\_\_\_\_\_\_\_

Ventricle

Deoxygenated blood

Oxygenated blood

Task 1. Label the parts of the heart.

Task 2. Circle a **valve**

Task 3 Colour the side of the heart that deoxygenated blood passes through.

Task 4. Colour the side of the heart that carries oxygenated blood through the heart

Task 5 Complete the passage below using the work bank.

The heart is made out of \_\_\_\_\_\_\_\_\_\_\_\_.

It is a \_\_\_\_\_\_\_\_\_ that squeezes the blood around the \_\_\_\_\_\_\_\_ and to the \_\_\_\_\_\_\_\_. The \_\_\_\_\_\_\_\_\_ side pumps blood to the lungs to pick up \_\_\_\_\_\_\_\_\_\_\_\_\_\_. The \_\_\_\_\_\_\_\_\_ side pumps blood around the rest of the body.

**RIGHT, LEFT, MUSCLE, BODY, PUMP, LUNGS, OXYGEN**

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| **HOMEWORK** | **Heart 2** |

Answer these questions in sentences.

1. Name the four chambers of the heart.
2. Name the blood vessels which carry blood AWAY from the heart.
3. Name the blood vessels which carry blood towards the heart.
4. A group of 10 children weight themselves. Their weights are in the table below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 40kg | 35kg | 43kg | 50kg | 62kg |
| 57kg | 34kg | 54kg | 47kg | 51kg |

1. What is the biggest weight in the class?
2. What is the smallest weight in the class?
3. What is the average weight in the class?
4. Name the 5 food groups.
5. Which food group helps growth and repair?

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| **HOMEWORK** | **Lungs 1** |

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| **Read this …**The peak flow rate is the maximum rate at which air can be forced from our lungs. A 16-year-old female’s peak flow rate is about 450 litres/minute and for a male it is about 520 litres/minute. Peak flow rate can be affected by asthma or bronchitis. It can also be reduced if you are a smoker. About 1 in 10 pupils in school could be suffering from asthma. If we want to have healthy lungs we should exercise regularly. Also, standing upright with good posture helps your lungs to work properly. If the air is polluted in any way (with unpleasant gases from factories or chemicals) this could affect the health of our lungs. |

**Questions**

Answer in sentences.

1. What is the ‘peak flow rate’?
2. What should the peak flow rate be for a 16-year-old male?
3. Name two illnesses that could cause your peak flow rate to be reduced.
4. How many pupils in school suffer from asthma?
5. Why is good posture and exercise good for us?
6. Explain why living near a large oil refinery could affect your health.

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| **HOMEWORK** | **Lungs 2** |

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1) Label all parts of the lungs A………………………………………….

 B………………………………………….

 C………………………………………….

 D………………………………………….

2) What is the function of A, B, C and D ?

3) Where does the gas exchange take place?

4) Which two gases are involved?

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| **HOMEWORK** | **Monitoring Health 1** |



1. Think of a good title for this article.
2. Why is the nutrition expert ‘frightened’ by the results?
3. Why is it good that the survey looked at thousands of adults and not just a few?
4. Which is the worst for health – being overweight, being obese, or being morbidly obese?
5. Name some diseases that are more likely to affect obese people.
6. What is the name of the measurement that doctors use to tell if people are overweight or obese?
7. How would you describe someone with a body mass index of
	1. 28?
	2. 32?

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|  **HOMEWORK** | **Monitoring Health 2** |

In science we have been measuring different things to see if we are healthy. Answer these questions in sentences, and show your working.

1. What is pulse rate a measurement of?
2. As you exercise what happens to your pulse rate?
3. What do the initials BMI stand for?
4. What measurements do you need to make to measure BMI?
5. A group of three friends weigh themselves. Alistair is 40kg, Ben is 44kg, and Colin is 51kg. What is their average weight?
6. Find the average from the following pupils heights (in cm):

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 145 | 160 | 142 | 163 | 152 | 120 | 147 | 138 |
| 129 | 143 | 160 | 162 | 149 | 137 | 127 | 140 |

|  |  |
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| **HOMEWORK** | **Healthy Diet** |



1. Which foods should you eat most of?
2. Which foods should you eat least of?
3. Which foods are rich in protein?
4. Which foods should you eat at least five portions of a day?
5. What does the body use bread, cereals, pasta and potatoes for?
6. Try to draw a pie chart that shows the proportions of different foods in your diet! Comment on how it compares to the ideal one shown above.

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| **HOMEWORK** | **Medals** |

1. The last Olympic medal that was made out of gold was in 1912.

What are the Olympic medals made of now?

1. The city which is hosting the Olympics can design the medals that are awarded, but there are certain rules the host city must follow. What are these rules?
2. Imagine Ardrossan Academy was hosting the Olympic games. Design an Olympic medal for Ardrossan Academy.

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| **HOMEWORK** | **Composite Materials 1** |

1. What is an alloy?
2. Find out about an alloy.

You should include the following information:

The name of the alloy you have researched.

What is the alloy made of?

How is it made?

What is it used for?

What is different about the alloy to the metals it is made from?

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| **HOMEWORK** | **Composite Materials 2** |



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| **HOMEWORK** | **Forces 1** |

1. Complete these sentences.

 They are about what forces can do to an object.

 Use the words in the list at the end.

 A force can change the \_ \_ \_ \_ \_ of a moving object.

 For example, the force from a car’s engine can make it go \_ \_ \_ \_ \_ \_.

 The car’s brakes can make it go \_ \_ \_ \_ \_ \_ and turning the steering wheel makes the car

 change \_ \_ \_ \_ \_ \_ \_ \_ \_ .

 A force can also change the \_ \_ \_ \_ \_ of an object.

 A spring can be \_ \_ \_ \_ \_ \_ \_ \_ \_ by a \_ \_ \_ \_ \_ \_ \_ force.

 A lump of putty can be \_ \_ \_ \_ \_ \_ \_ \_ by a force.

Stretched faster direction slower

pulling squashed speed shape

2. What do we call the device used to measure a force?

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. What are the units of force?

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. What is the abbreviation for this unit?

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **HOMEWORK** | **Forces 2** |

1. What are the readings shown on the newton balances?

a) b) c)

0

5

10

15

20

0

1.0

2.0

3.0

4.0

0

0.5

1.0

1.5

2.0

2. An experiment was carried out to measure the length of a spring as different forces were applied. The results are shown below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Force (N)** | 1  | 2 | 3 | 4 | 5 |
| **Length (cm)** | 5 | 7 | 9 | 11 | 13 |

a) Draw a **line graph** of the results.

b) What was the length of the spring when not stretched? \_\_\_\_\_

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| **HOMEWORK** | **Forces 3** |

1. Increasing and Reducing Friction

 rougher speed grip grooves

 movement lubricating streamlining

*Use the word bank above to complete the sentences below.*

1. Friction is needed in situations where more \_ \_ \_ \_ on a surface is wanted.
2. We can increase friction by using \_ \_ \_ \_ \_ \_ \_ surfaces with more grip or using surfaces with more \_ \_ \_ \_ \_ \_ \_ (e.g. the soles of winter boots).
3. Friction is not wanted in situations where more \_ \_ \_ \_ \_ or \_ \_ \_ \_ \_ \_ \_ \_ is needed.
4. We can reduce friction by \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ moving parts or \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ \_ vehicles.

2. Give three examples showing how friction is reduced in the sports in the Olympics. Explain how each one works.