



Homework	Due Date	Award
1		
2		
3		
4		
5		



Stonelaw High School

Science Faculty

BGE Science

Stonelaw General Practice

Homework Booklet



Name: _____

Class: _____

Success Criteria

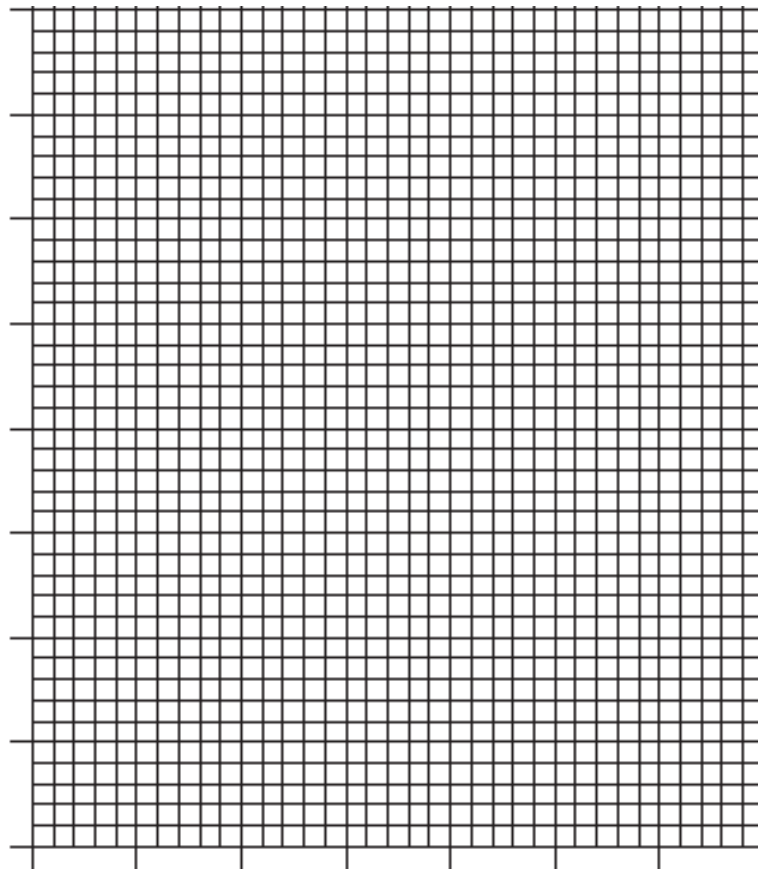
- ✓ I am confident that I understand this and can apply this to problems
- ? I have some understanding but I need to revise this some more
- * I do not understand this and I need help with it

I will be successful if I can...		How well can you do this?
3 rd	Describe how tissues, organs and organ systems are formed	ü ? x
2 nd	Name the main body systems in the human body	ü ? x
3 rd	Identify the parts of the male and female reproductive system	ü ? x
3 rd	Name the parts of the male and female reproductive system and describe their function	ü ? x
3 rd	Name the male and female sex cells and identify where they are produced	ü ? x
3 rd	Explain why sex cells only contain half the genetic information needed to make up an individual	ü ? x
3 rd	Describe the process of fertilisation	ü ? x
3 rd	Describe what happens to egg cell after fertilisation	ü ? x
3 rd	Identify the placenta, amniotic sac, amniotic fluid and umbilical cord	ü ? x
3 rd	State the function of the placenta, amniotic fluid and umbilical cord	ü ? x
3 rd	Give examples of substances which can cross the placenta	ü ? x
3 rd	Explain the risks of tobacco, alcohol and drugs on the development of the embryo	ü ? x
2 nd	State the function of the circulatory system	ü ? x
2 nd	Name the main parts of the circulatory system	ü ? x
3 rd	Describe the function of the cells within the blood	ü ? x
3 rd	Name the three types of blood vessels and state their function	ü ? x
3 rd	Describe the pathway of blood through the heart	ü ? x
2 nd	List examples of unhealthy lifestyle choices	ü ? x
3 rd	Describe complications of unhealthy lifestyle choices on the cardiovascular system	ü ? x
3 rd	Give examples of methods used to assess a person's overall health	ü ? x
2 nd	List examples of healthy lifestyle choices	ü ? x
3 rd	Explain the importance of exercise	ü ? x
4 th	Explain the importance of cell division	
3 rd	Describe how cancer develops	

2 nd	Give examples of factors which can increase/reduce risk of cancer	
4 th	Describe the use of gamma rays and X-rays in cancer treatment	
4 th	Explain the limitations of radiation as a treatment option for cancer	
2 nd	Give examples of infectious diseases caused by different types of microorganism	ü ? x
3 rd	State the symptoms and causes of different infectious diseases	ü ? x
3 rd	Describe how diseases can spread from one person to another	ü ? x
3 rd	Describe how the spread of disease can be prevented	ü ? x
3 rd	Describe how antibiotics work	ü ? x
3 rd	Give examples of diseases that can be treated using antibiotics	ü ? x
3 rd	Discuss the problems associated with the overuse of antibiotics	ü ? x
3 rd	Explain why you should always finish a course of antibiotics	ü ? x
3 rd	Describe the role of the immune system	ü ? x
3 rd	Give examples of barriers to infection and describe how they provide protection	ü ? x
3 rd	Name the type of cells which fight infection	ü ? x
3 rd	Describe how vaccines are produced	ü ? x
3 rd	Explain how vaccines work	ü ? x
3 rd	Give examples of vaccines which are available	ü ? x
4 th	Explain why some vaccines are rejected by the public and the consequences of this	ü ? x

1.	(a)	<p>After fertilisation, the number of cells doubles as the zygote travels to the uterus for implantation. The number of cells is shown in the table below.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Day</th> <th style="text-align: center;">Number of cells</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">0</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">4</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">8</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">16</td> </tr> </tbody> </table>	Day	Number of cells	0	1	1	4	2	8	3	16	
Day	Number of cells												
0	1												
1	4												
2	8												
3	16												

On the grid below, draw a line graph of the results



- (c) Once an embryo has implanted in the uterus, it develops into a foetus. Complete the sentences below using the words from the word bank.

food umbilical fluid oxygen placenta bumps

The foetus is surrounded by amniotic _____ which cushions it from _____ . The foetus gets _____ and _____, from it's mother, through the _____.

This is connected to the foetus by the _____ cord.

2. During pregnancy, the foetus grows from a ball of cells into a fully developed baby.

The table below shows the length of a human baby as it develops in its mother's womb.

<i>Age of developing Baby (months)</i>	<i>Length of developing baby (cm)</i>
1	1
2	4
3	9
4	16
5	25
6	32
7	39
8	47
9	52

(a) Calculate the difference in length of the developing foetus between 4 and 8 months.

Space for calculation

(b) Calculate the simple whole number ratio of the length of the developing foetus at 2 months compared to 6 months. _____ cm

Space for calculation

_____ : _____
 2 months 6
 months

(c) Identify when there was greatest increase in length of the developing foetus.
Space for calculation

_____ and _____ months

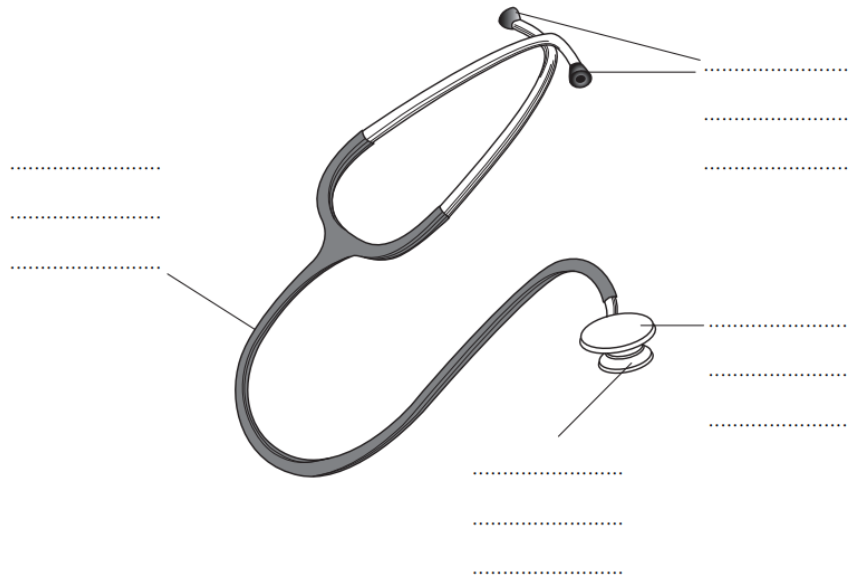
(d) Using the results in the table, complete the sentence below to describe the relationship between the size of the mammal and its gestation period.

As the size of a age of the developing foetus increases, the length of the foetus { increases / decreases } .

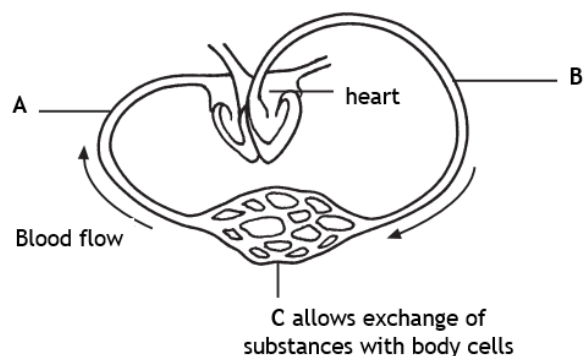
Homework 2

GOLD SILVER BRONZE

1. (a) Read the information below and use it to label the diagram. A stethoscope is used by a doctor to listen to a patient's heart and lungs. The stethoscope has plastic ear pieces which fit into the doctor's ears. It has a small open bell which is used to listen to the heart and a large closed bell which is used to listen to the lungs. The doctor can turn the bells to use the one that he needs. The flexible rubber tubing carries sounds from the bells to the doctor's ears.



- (b) The diagram below shows the circulatory system.



Match each letter to the part of the circulatory system it represents.

<i>Letter</i>	<i>Part</i>
A	Vein
B	Capillary
C	Artery

2. (a) Obesity is a major health problem in Scotland.

The table shows information about the percentage of adults in Scotland who are overweight.

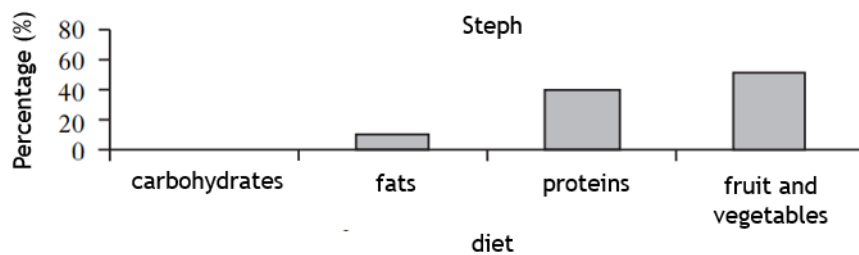
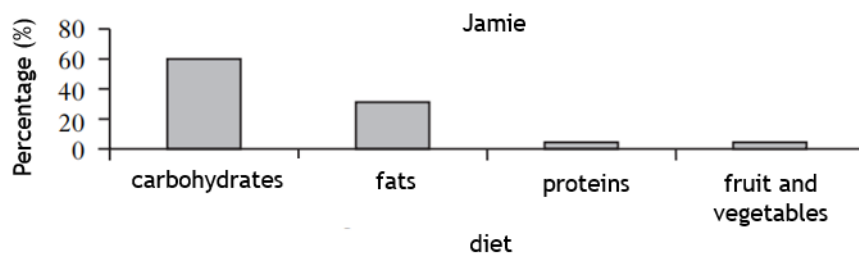
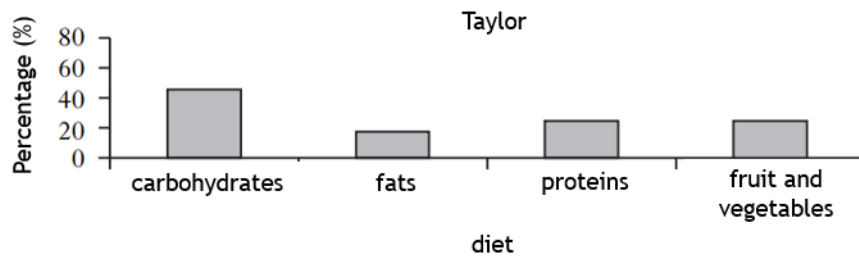
Age (years)	Percentage of adults in Scotland who are overweight (%)	
	Men	Women
25-34	58	42
35-44	66	52
45-54	72	62
55-64	76	71

Draw two conclusions from this information.

1. _____

2. _____

(b) The bar graphs show information about the diets of 3 individuals.



For each question tick (✓) the correct box.

(i) Which person has a balanced diet? Justify your answer.

Taylor	<input type="checkbox"/>	Jamie	<input type="checkbox"/>	Steph	<input type="checkbox"/>
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Reason _____

(ii) Which person is most at risk of becoming obese? Justify your answer.

Taylor	<input type="checkbox"/>	Jamie	<input type="checkbox"/>	Steph	<input type="checkbox"/>
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Reason _____

Homework 3.

GOLD SILVER BRONZE

1. Read the passage below.

“Gene genie” adapted from an article in the Sunday Times.

Cancer is the survival and uncontrolled multiplication of damaged cells. One in four of us will still die of cancer. There were estimated 14.1 million known cancer cases around the world in 2012. In 60% of cancer cases the main cause is a faulty gene called **p53**. This “guardian angel” gene is the body’s naturally occurring brake that stops cancer before it begins.

Healthy **p53** tells a cell that it has been damaged by a cancer-causing agent such as tobacco smoke, a high fat diet or ultra-violet light. The cell then destroys itself. In some people the “guardian angel” gene does not switch on. This makes the process fail and the result is a cancerous tumour.

Scientist David Lane, who discovered the gene, now plans to test a **p53** activator drug in Dundee. The aim of the drug is to use mechanisms already present in the body. It is designed to switch the p53 gene on, and as a result, the cancer cells should be destroyed without damage to healthy cells. This will make the drug much kinder than chemotherapy and radiotherapy treatments used at present.

The drug will be tested on a small number of patients with head and neck cancers. Doctors believe these tumours are more accessible and easier to monitor than other types of cancer.

Answer the following questions based on the passage.

- (a) Name two cancer causing agents mentioned in the passage.

1. _____

2. _____

- (b) Describe how the p53 gene prevents cells forming cancerous tumours.

- (c) Explain why the new p53 drug should be safer than present treatments.

- (d) Give two reasons why the first trials will be on patients suffering from head and neck cancers.

1. _____

2. _____

2. In Scotland, certain cancers are screened for.
Select one of type of cancer which is screened for from the list below and produce a leaflet or PowerPoint presentation to display the information.

You must include:

- A detailed description of the condition
- The symptoms which can be associated with the condition
- Any treatment currently available on the NHS or being researched
- The screening method used

Homework 4.

GOLD SILVER BRONZE

1. The following paragraph contains information about different types of microorganism.

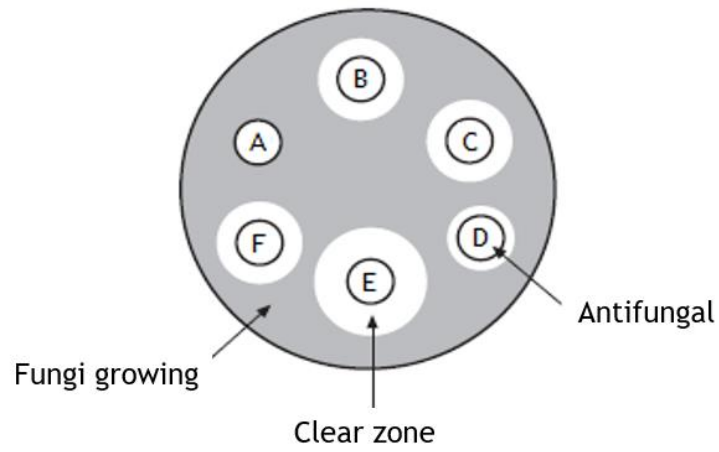
Salmonella is a bacterium which can cause food poisoning in humans, often found in undercooked meat. The most common symptom of food poisoning is vomiting, which can last up to several days. Another type of bacteria, *Streptococcus*, is responsible for throat infections which cause painful swallowing in sufferers. Bacterial infections can be treated by antibiotics. Athlete's foot is a fungal disease which causes an itching or burning sensation in the feet. It can be caused by a range of fungi such as *Microsporum*. Whilst athlete's foot is not usually serious, it should be treated to stop it spreading to other parts of the body or other people. Influenza, commonly known as the flu, is most common in winter. It is characterised by fever, when the body temperature increases above 38°C, and is caused by the *Influenza* virus. Antibiotics are not effective against viral diseases such as influenza.

Use the information in the paragraph to create a table using appropriate headings.

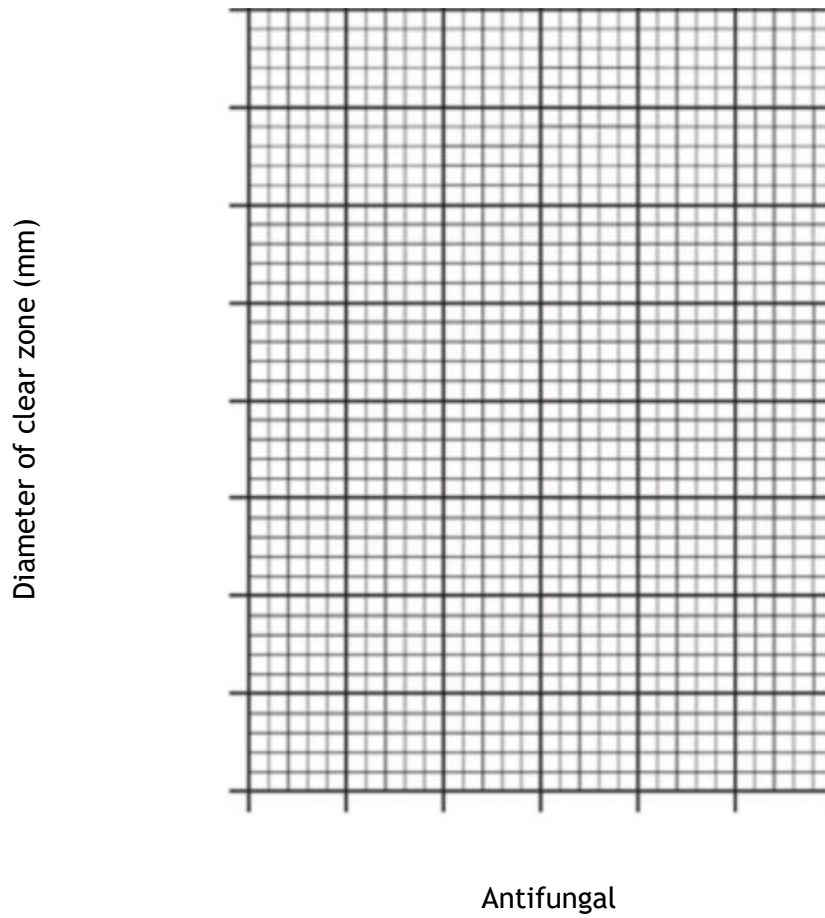
	<i>Type of microorganism</i>	<i>Disease</i>	
<i>Salmonella</i>		Food poisoning	
	Bacteria		Painful swallowing
<i>Microsporum</i>			Itching / burning
	Virus	Influenza	

2. An investigation was carried out to determine the most effective antifungal against a newly discovered fungus. The clear area around the fungi was measured to show how effective the antifungal was at destroying the microbe, as shown below.

<i>Antifungal</i>	<i>Diameter of clear zone (mm)</i>
A	0
B	5
C	5
D	2
E	7
F	5



(a) Use the table above to construct a bar graph of the results



(b) Identify the antifungal which was

(i) The most effective

(ii) The least effective

(c) State a suitable conclusion for this investigation. (*remember to link it to your aim*)

(d) Suggest one way in which the results could be made more reliable.
