S3 – Biology rota 2

Multicellular Organisms and environment

During Unit 2 I will learn about:

- **Exercise and Health of heart and lungs**
- **Food and digestion**
- **Reproduction and inheritance**
- **Learning**
- **Photosynthesis**
- **Ecosystems**

☆☆☆☆ **Homework Tasks** ☆☆☆☆

For this topic you must complete Tasks as your teacher request

NAME.....

☆☆☆☆ **Homework Book** ☆☆☆☆

You will be issued with 1 copy of this book only.
If you lose it or destroy it you will be responsible for printing out another one at your own expense.
An electronic copy is in the S3 Biology folder on the school system

WHEN IS IT DUE IN?

You can hand your work in as soon as you like,

but NO LATER THAN _____

!!NO EXCUSES!!

Task 1 Heart

Obesity is a factor that affects Coronary Heart Disease (CHD).

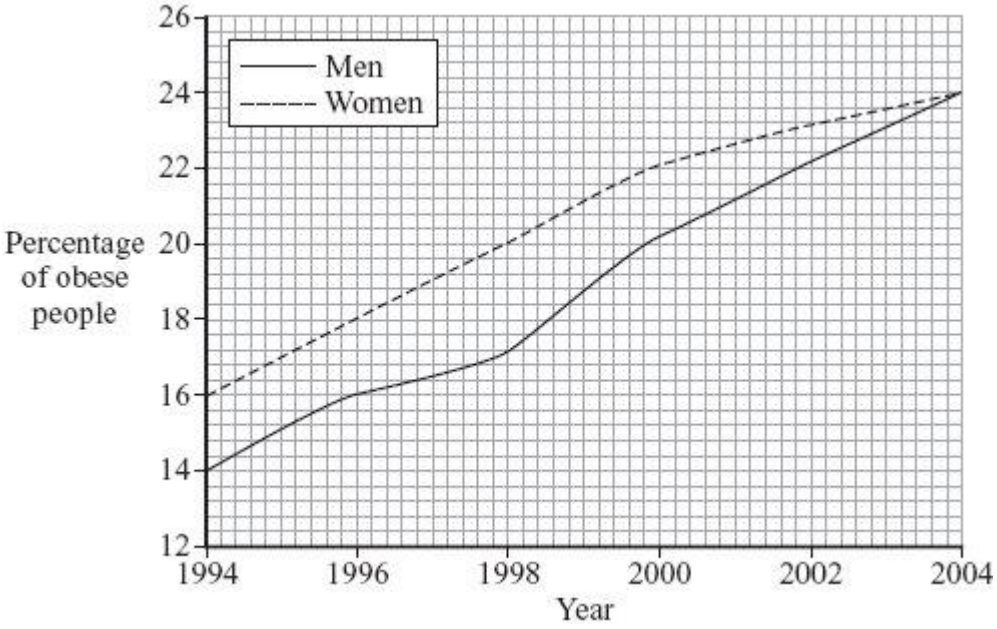
(a) What is meant by *obesity*?

.....

.....

(1)

(b) The graph shows how the percentages of obese men and women in the UK changed between 1994 and 2004.



(i) Describe how the percentage of obese women changed between 1994 and 2004.

.....

.....

.....

.....

(2)

(ii) The percentage of obese men changed between 1994 and 2004.

Suggest **two** reasons for this change.

1. .....

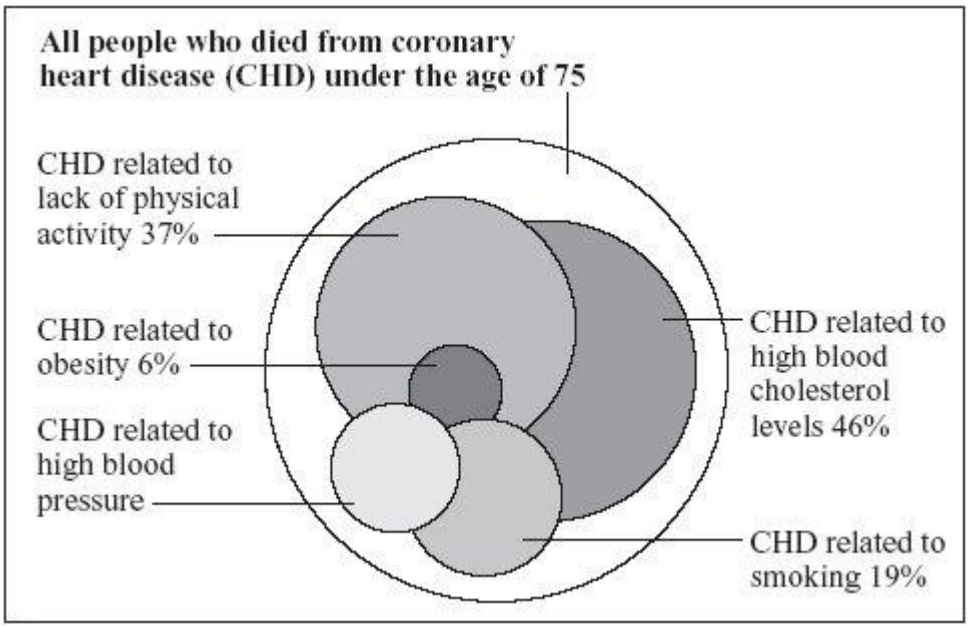
.....

2. .....

.....

(2)

(c) The chart below is published by the British Heart Foundation. It shows how death from CHD is related to a number of different factors.



Each factor is represented by a circle.

The bigger the circle, the more people are affected by the factor.

(i) What is the main factor causing death from CHD?

.....

(1)

(ii) Estimate the percentage of deaths from CHD related to high blood pressure.

..... %

(1)

(iii) The data are shown as overlapping circles instead of a bar chart. The percentages of deaths related to the different factors add up to more than 100%.

What does this tell you about some of the people who died from CHD?

.....

.....

(1)

(Total 8 marks)

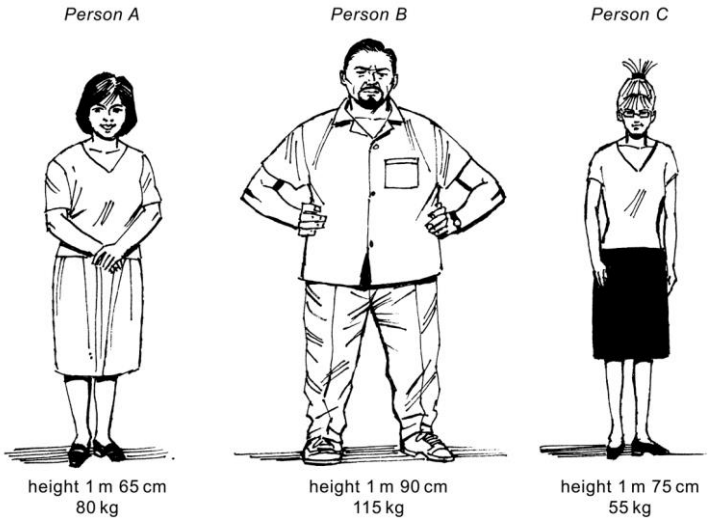
Task-2- Food

Slimming plans

Your body mass index (BMI) is a measure of your mass against your height.

$$\text{Body mass index} = \frac{\text{mass (kg)}}{[\text{height (m)}]^2}$$

1 Work out these three people's BMI. (*3 marks*)



Then use this table to identify each person's weight category. (*3 marks*)

BMI	**Weight category**
Less than 15	Seriously undernourished
15–19	Underweight
20–25	Acceptable
26–30	Overweight
31–35	Obese
35+	Grossly obese

2 You need to think about dieting if your BMI is above what number? (*1 mark*)

3 What might be the reasons for somebody being overweight? (*3 marks*)

4 Should you diet to lose weight or should you diet to lose fat? Explain the difference. (*3 marks*)

Weight Watchers

- Uses a points-based system.
- Each food is given points based on the amount of fat, fibre and energy it contains.
- Each person is set a points target for the day.
- You can eat anything as long as you do not go over the target.
- You can meet once a week with other 'weight watchers' to measure and discuss progress.

$$\text{Points} = \left(\frac{\text{energy in calories}}{50}\right) + \left(\frac{\text{fat in grams}}{12}\right) - \left(\frac{\text{fibre in grams}}{5}\right)$$

For example:
1 egg = 1 point
1 tablespoon of oil = 4 points
1 can of tomato soup = 2.5 points.

Slim-Fast Diet

- Slim-Fast is a meal-replacement diet.
- You can eat as often as six times a day to avoid highs and lows.
- You take two Slim-Fast shakes for breakfast and for lunch.
- You have a normal dinner.
- Each Slim-Fast meal replacement is around 240 calories and with the meal you should not go over 1200 calories.
- Slim-Fast shakes contain added vitamins and minerals, essential fatty acids and proteins.

Atkins Diet

1st stage

- You only eat proteins (meat, fish, poultry, eggs) and fats (oils, butter, etc.).
- You are only allowed 20 g of carbohydrate each day.
- You don't eat any fruit, vegetables or bread. This tricks your body into thinking it is starving and your body uses up its glycogen store.
- Your body loses a lot of water at first.
- If your body is starving it might begin to break down muscle tissue
- It might also damage your kidneys.

Second stage
(after a couple of weeks)

- You start to eat more carbohydrate until you stop losing weight.
- This gives you your maximum carbohydrate limit.
- You must stay under that limit to carry on losing weight.

5 Using information from above, work out the Weight Watchers points for the foods in this table. (*3 marks*)

Food	Kilocalories	Fat	Fibre	Points
Milk (100 ml)	65	3.8	0	
Bread (100 g)	230	1.7	4	
Chips (100 g)	250	11	2	

6 Do any of the diets above encourage the use of exercise? (*1 mark*)

7 Why would it be better to exercise as well as diet? (*3 marks*)

8 Why does obesity cause health problems like:

a high blood pressure

b heart attacks

c arthritis (swollen joints)? (*Total 3 marks*)

9 Which of the diets above would be best for Person B? Explain your answer. (*2 marks*)

10 Design a dieting programme for Person A. (*3 marks*)

Task 3 Different forms of reproduction

The drawing shows a spider plant. Daughter plants grow on stalks. The daughter plants can be planted and they will grow into new spider plants.

1 **a** Write down one reason why you would expect the daughter plants to be exactly the same as the parent plant when they are fully grown. (*1 mark*)

2 The table shows different examples of reproduction. Copy the table and tick the correct boxes in the table to show whether each one is an example of sexual reproduction or asexual reproduction. (*4 marks*)

Example	**Sexual**	**Asexual**
a litter of kittens		
growing an apple tree from a seed		
growing an African violet plant from a cutting		
bacteria reproducing on food		

4. There are two types of reproduction, asexual and sexual. Use the words in the box to complete the sentences about reproduction.

You may use each word once or not at all.

asexual	eggs	gametes	fertilisation	inheritance
ovaries	sexual	sperms	testes	variation

The genetic information from the mother is carried in the .....

which are made in the ..... .

The genetic information from the father is carried in the .....

which are made in the ..... .

In ..... reproduction, offspring are produced that are genetically

different from either parent.

This happens because genetic information from each parent is carried in the

..... and joined together during .....

to develop into a fetus.

In ..... reproduction, genetically identical offspring are

produced because no mixing of genetic material takes place.

Task 4- Learning

Answer the following questions

1. What is the name given to behaviour an animals is born with?

2. Give an example of this type of behaviour.

3. What are some of the characteristics of learned behaviour?

4. Learning is sometimes done by watching others, how else could learning be done?

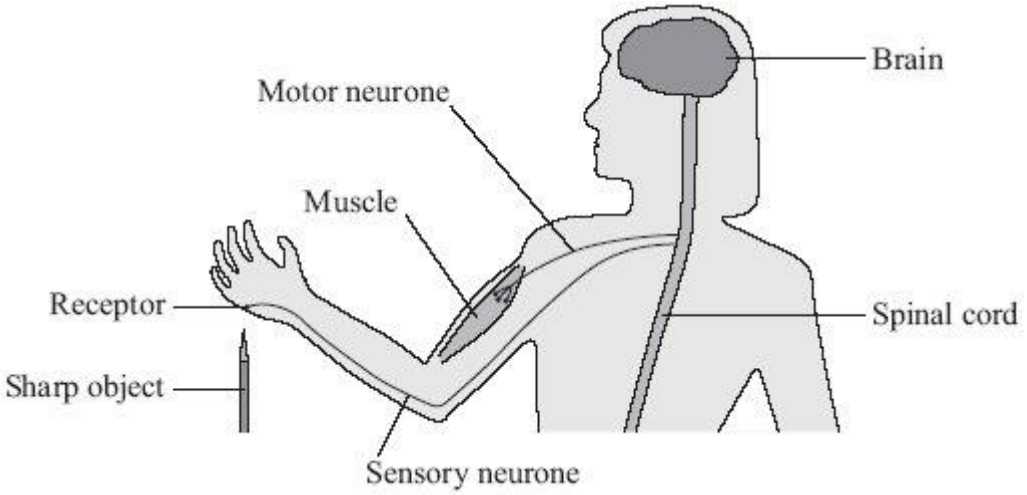
5. What is the name given to short term learning response?

6. Why is this short term learning an advantage to the animal?

7. Choose an animal that has to learn to behave is a social group.

   Name this animal. Describe the behaviour that is learnt, how it learns this behaviour and it helps it survive.

8. A student accidentally touches a sharp object.
Her hand is immediately pulled away from the object.
The diagram shows the structures involved in this response.



(a) Use the correct word or phrase **from the diagram** to complete each sentence.

(i) The stimulus is detected by the .....

(1)

(ii) Impulses travel to the central nervous system along a cell called a .....

(1)

(iii) Impulses travel from the central nervous system to the effector along a cell called a .....

(1)

(iv) The hand is pulled away from the sharp object by the .....

(1)

(b) Where in the body are there cells sensitive to:

(i) light .....

(1)

(ii) sound .....

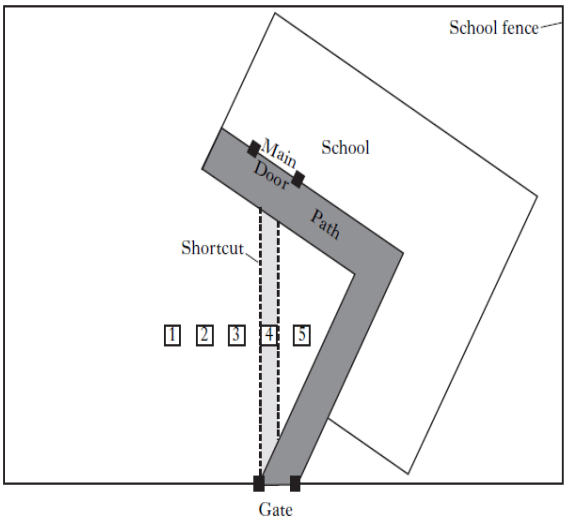
(1)

(iii) changes in position?.....

(1)

.Task 5- Ecosystems and photosynthesis

1. A grass area is used as a shortcut by pupils of a school.
   An investigation was carried out on the effect that this had on the abundance of three types of plants.
   The diagram below shows the position of the five quadrats used in the investigation.
   The table below shows the abundance of plants found in each quadrat.



	Abundance of plants		
Quadrat number	Daisies	Plantains	Buttercups
1	22	8	23
2	18	14	16
3	10	18	7
4	2	24	1
5	23	20	18

(a) Use the information from the table to describe the effect that using the shortcut had on the abundance of
(i) daisies

(ii) plantains. 2

(b) Suggest reasons why the abundance of daisies and plantains changed around the shortcut.

2

(c) Calculate the average abundance of buttercups found per quadrat. 1

(d) How could the reliability of the results of this investigation be improved? 1

2. This is a simple food chain.

Lettuce plant → Slug → Frog → Heron

(b) (i) The slug obtains its energy from the lettuce plant. What is the source of energy for the lettuce plant?

.....

(1)

(ii) What is the function of chlorophyll in a lettuce plant?

.....

c) Name the two raw materials and products of photosynthesis.

Raw materials _____ and _____

Products _____ and _____

2

Self-evaluation

Skills

Skills for Learning	Skills for Life	Skills for Work
• Creating • Evaluating • Analysing • Applying • Understanding • Remembering	• Working with others • Good communicator • Accept and respond to challenges • Take responsibility for managing own learning • Take good care of yourself	• Positive attitude • Determined to succeed • Ability to work with others • Ability to communicate (orally and written) • Flexibility in approach to work • Ability to take responsibility

Choose 1 skill from each box and describe an occasion during the course you used this skill.

This list of Biology Skills may help you

1. Focused a microscope.
2. Calculated cell size.
3. Wrote a scientific report.
4. Constructed a line graph
5. Make a contribution when working in a group.
6. Worked independently.
7. Designed and carried out practical investigations.
8. Related what I learned to real life situations.
9. Debate an ethical issue.
10. Make physiological measurements.

I can make life style choices based on consequences to my health. I now know that I must:-

1. My marks for unit 2 assessment.

Unit	Marks
1. Cell Biology	
2. Multicellular	

2. I completed a practical report

The title of the report I did best in was:

To learn I must:

1. Attend class.
2. Listen and take part in lessons.
3. Complete all the classwork.
4. Complete all the homework.
5. Revise from my notes at home.
6. Attend supported study for extra help.
7. Take responsibility for my learning and look after my jotter and books.
8. If I miss work it is my responsibility to catch up.

Things I could do to improve my learning:

……

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