**S2 Science Energy and Living Things**

**Week beginning Monday 4th May 2020**

Tasks to be completed this week are on our Energy and Living things topic.

Lesson 1 – Habitats

Lesson 2 – Sampling Organisms

Lesson 3 – Biotic and Abiotic Factors

There are links throughout the lessons to short educational videos found on TWIG, you can sign up for free using this link to access them.

https://www.go.twigeducation.com/covid19-global

If you don't have access to the videos don't worry as you can access the linked BBC bitesize videos and use your summary notes

https://blogs.glowscotland.org.uk/nl/public/cascience/uploads/sites/23281/2020/03/17121926/Energy-and-Living-Things-Summary.pdf

to help you to complete the tasks. Answers to the tasks will be made available at the end of the week.

**Lesson 1 Habitats**

**Learning Intention**: to understand the term habitat and to retrieve information about different habitats

The place where an organism lives is called its **habitat**

Open these files and read the information about five different habitats: the coral reef, the rainforest, the desert, the savannah and polar.

The following Twig videos are also helpful:

https://www.twig-world.com/film/savannah-1216/

https://www.twig-world.com/film/venn-diagrams-global-habitats-1798/

https://www.twig-world.com/film/life-in-hot-deserts-1129/

https://www.twig-world.com/film/life-in-the-freezer-1128/

Complete the table in this link- Investigating Different Habitats … you can print this out to complete it or copy it into your science jotter or paper.

**Lesson 2 - Sampling Organisms**

**Learning Intention**: to understand the techniques used to sample organisms living in different habitats.

**Read**

Sampling with quadrats

Quadrats are square grids that can be used to sample and estimate the how many plants or slow moving animals are in an area.

A quadrat of a certain size is thrown in an area.

The number of squares containing a certain plant or animal can be counted. Then the number can be multiplied to calculate an estimate of the total number of organisms in the full area …

For example…

There are four dandelion plants inside a 0.25 m2 quadrat. The whole field is 50 m2 in area. The estimated number of dandelions in the field would be:

4 × (50 ÷ 0.25) = 4 × 200 = 800

To make sure the sample represents the variety of organisms that are really there, the quadrat should be thrown randomly

The quadrat should be thrown as many times as possible to work out an average number of organisms in each quadrat. This makes the estimated number more valid and reliable.

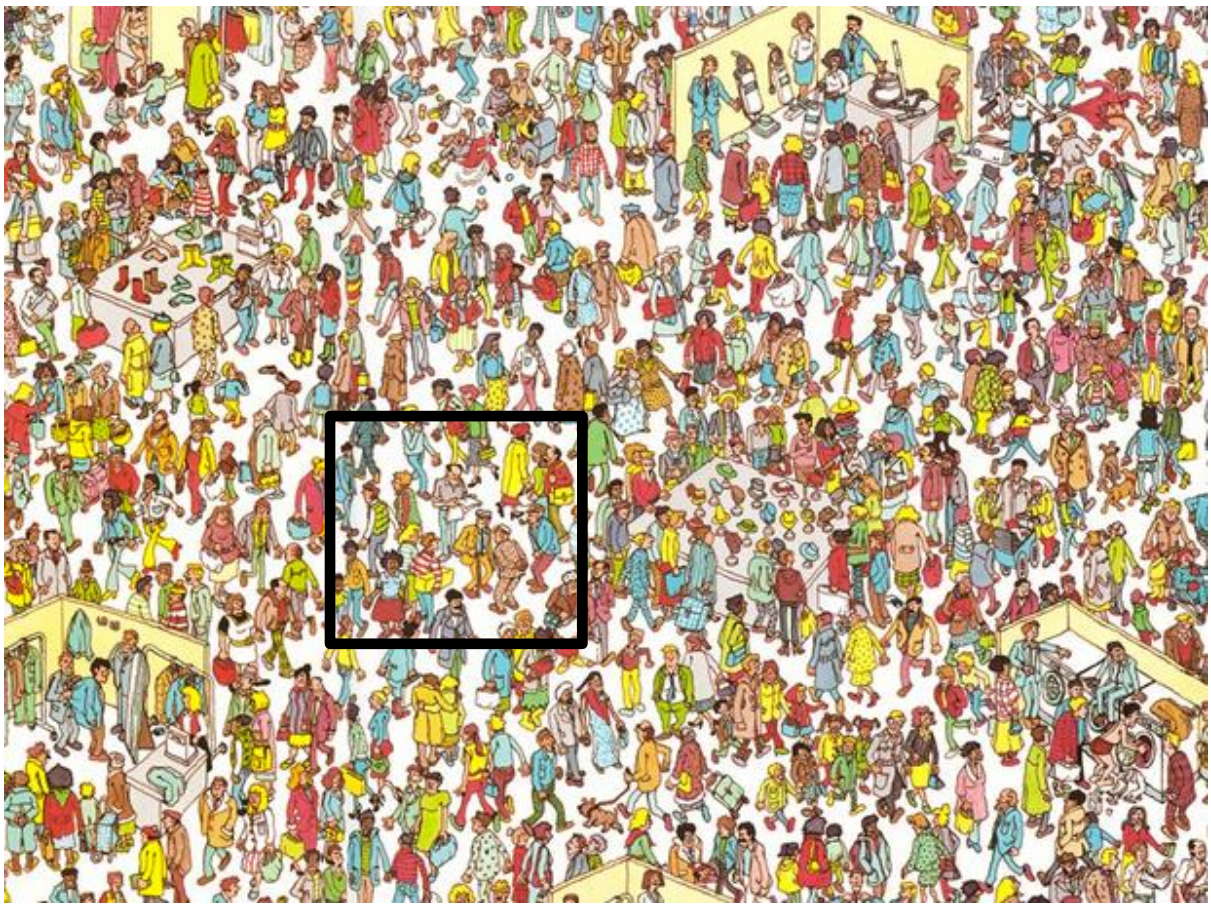
**Do**

1. A small quadrat was thrown randomly onto this Where's Wally picture.

The picture is 150 $cm^2$ and the quadrat is $9cm^2$

Can you estimate how many characters there are in the full picture using the method in the example above?

* If a character is partly in the quadrat it should be counted!



2. What types of organisms would usually be sampled using a quadrat?

3. When using a quadrat, what would you need to do to make sure your sample is representative?

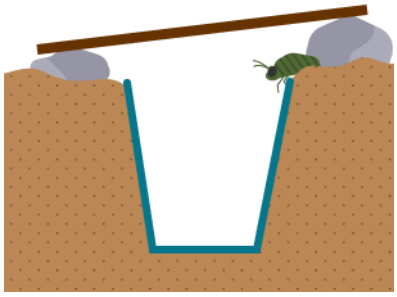
4. When using a quadrat, what would you need to do to make sure your sample is reliable?

**Read**

Pitfall traps

A pitfall trap is often used to get a sample of small invertebrates living on the ground, such as beetles, spiders and slugs.

It consists of a container, such as a yoghurt carton, buried in the ground. The top of the container is level with the soil surface, and it is covered by a piece of wood with a slight gap to allow insects to climb in. It is important to check the trap regularly to avoid the animals escaping or being eaten before they are counted.



**Do**

1. If you have a garden or live near an area with suitable soil you could make your own pitfall trap. This will tell you a lot about the organisms that live near you! Use this guide to help you

https://www.rspb.org.uk/globalassets/downloads/kids--schools/teaching-resources/make-a-pitfall-trap.pdf

Take pictures or tell me what you find

2. Jimmy laid a pitfall trap in his garden. He checked it three days later and found three black beetles inside. He decided that the only insects present in his garden are black beetles.

a. Jimmy wasn't right to think this. What could have happened?
b. What should Jimmy do next time to ensure that his sample is representative and reliable?

## Lesson 3 Biotic and Abiotic Factors

**Learning Intention**: to understand biotic and abiotic factors that can affect organisms

### Watch

Watch the following video about abiotic factors

https://www.bbc.co.uk/bitesize/guides/zq7xjty/video

### Do

1. Copy and complete the following statement and table into your jotter or onto a piece of paper. Leave enough space to write down an answer between each question. Watch the video again if you need to.

Abiotic factors are _____ variables found where organisms live. They influence where organisms are found.

| Abiotic Factor | Equipment that measures the factor | Sources of error when measuring |
|---|---|---|
| Light Intensity | | |
| | Soil moisture meter | |
| Soil pH | | |
| | Thermometer | |

2.

Biotic factors are living variables that affect organisms.

**Watch**

Watch the following videos to help you complete the task below.

https://www.twig-world.com/film/biotic-factors-in-ecosystems-1232/

https://www.youtube.com/watch?v=nQO5x8Q3e8g

**Do**

List as many biotic factors as you can that can affect the organisms living in this woodland