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<th>Science Home Learning Task</th>
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<td>Ecosystems</td>
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<th>Tutor Group</th>
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<th>Given out: Monday 25 April</th>
<th>Hand in: Tuesday 3 May</th>
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Parent/Carer Comment

Staff Comment

Target
**Investigating science**

Welcome to your Science homework booklet. This booklet is designed to give you some extra practise in the “Ecosystems” section of the course.

You need to carry out tasks **1, 2, 3 and 4**.
Then choose **either** the bronze, silver or gold task – go on, challenge yourself.

Don’t forget to fill in the last page and ask a parent/carer to sign the box on the front.
**TASK 1 - Making food**

Plants have the ability to make their own food. Answer each of the following questions below.

1. What is the name of the process that plants use to make their own food?
   
   ____________________________________________________________
   
   ____________________________________________________________

2. Where in the plant is this process carried out?
   
   ____________________________________________________________
   
   ____________________________________________________________

3. Complete the **word equation** for the process that you have named in question 1.
   
   ______________________ + water  →  ______________________ + ______________________

   Circle the **products** in the equation above.

4. Can plants make food in the dark? Circle your answer and then explain your answer.

   YES          NO

   ____________________________________________________________
   
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5. The equation in question 3 shows that plants need water to be able to make food. Describe how the water gets into the plant.

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6. The plant also needs a gas to be able to make food. Describe how this gas gets in and out of the plant.

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**TASK 2 – Leaves**

The leaves of plants are specially adapted to make food. Answer the following questions in the spaces provided.

1. Describe the ways that leaves are adapted to make their own food.

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2. The pictures below show leaves from plants that live in shaded areas (A) and sunny areas (B).

   ![A](image1.png)  ![B](image2.png)

   A  B
Describe the difference in the size of the leaves and explain your answer.

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3. A cactus plant that lives in the desert has spikes instead of leaves. Can you suggest a reason why a cactus doesn’t have leaves?

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4. The top and bottom surfaces of leaves look different. Describe the difference in the way these surfaces look and explain why they are different.

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5. The two major layers of a leaf are the **palisade layer** and the **spongy layer**. Using the diagram above, describe each of these two layers and explain how its structure helps with the role that it has in making food.

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**TASK 3 – Respiration**

1. Why do plants and animals carry out respiration?

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2. What part of a cell carries out respiration?

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3. There are two types of respiration carried out in our body. Write down the names of the two types of respiration.

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4. Complete the equations for the two types of respiration.

\[ \text{Glucose} + \text{____________} \rightarrow \text{____________} + \text{____________} + \text{____________} \]

\[ \text{Glucose} \rightarrow \text{____________} + \text{____________} \]
5. Using your equations from question 4, write down the major differences between the two types of respiration.

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6. When we exercise, our heart rate and breathing rate increase. Using the equations in question 4 and your answer from question 5, suggest reasons for these changes in our body, in terms of respiration.

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7. Yeast cells carry out a special type of **respiration** called **fermentation**. What products are made during this process and how are these products useful for making beer and bread?
**TASK 4** – Food webs and chains

1. What does a **food chain** show?

__________________________________________________________________

__________________________________________________________________

2. Make a food chain using the organisms below.

- Nettles
- Barn owls (eats voles)
- Caterpillar (eats nettles)
- Vole (eats caterpillars)

3. Answer the following questions about the **food chain** you have drawn above.

a) What do the arrows in a **food chain** mean?

__________________________________________________________________
b) Write down the name of the **producer** in your food chain.

__________________________________________________________________

c) What is meant by the term “**producer**”? 

__________________________________________________________________

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d) Write down the name of a **herbivore** and a **carnivore** in your food chain.

**Herbivore** ______________________________________________________

**Carnivore** ______________________________________________________

e) What is meant by the terms “**herbivore**” and “**carnivore**”? 

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4. The diagram below shows a **food web**. Answer the questions below.

![Food Web Diagram]

a) What would happen to the organisms in the **food web** above if there was a decrease in the grasses?

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b) What would happen to the organisms in the **food web** above if there was a decrease in the fox population?

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c) The animals and plants in a **food chain** need each other for survival. Circle the word below that describes this.

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<th>Population</th>
<th>Interdependent</th>
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d) Describe what would happen to the owl population in the **food web** above if the grains had been sprayed with a chemical insecticide. **Hint: think bioaccumulation.**

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**TASK 5 – Bronze, silver or gold? Complete one task from below.**

**Bronze task**  
**Chemosynthesis.** Some organisms are not able to use light to make food but use other sources instead. Find out about an organism that makes its food in this way. Write down where the organism lives and how it makes food without using light. Show your findings on the blank page provided.

**Silver task**  
**Explain it!** You have been asked to explain *food chains* and *food webs* to pupils at your local primary school. Write down how you would teach them about food chains and webs and what you would say on the blank page provided.

**Gold task**  
**Storyboard.** Imagine you are an energy particle in the Sun. Draw and write about your journey from the Sun and through a *food chain* of your choice. Make sure you use keywords from the topic in your description. Use the storyboard page provided.
Blank page for bronze and silver and tasks – If you need more paper, ask your teacher
Extra space for bronze, silver and gold tasks.
Extra space for bronze, silver and gold tasks.
Self Evaluation of my Homework

A Responsible Learner.....
- takes responsibility for their own learning
- listens to others
- works well as part of team

A Resilient Learner.....
- does not give up
- rises to the challenge
- has the motivation to succeed

A Reflective Learner.....
- evaluates their learning
- learns from their mistakes
- knows how they are performing and what they need to do to improve

A Resourceful Learner.....
- is prepared to learn
- uses initiative and knows how to find out
- is prepared to think outside the box

I am a R____________________ learner.

I know this because:

______________________________________________________
______________________________________________________
________________________________________________________________________
________________________________________________________________________

I believe that my effort and attitude to learning for this booklet is a:

1 2 3 4

I know this because:

________________________________________________________________________
________________________________________________________________________
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