

SIGNS OF LIFE

KEY IDEAS

- Living things show similar characteristics of life
- Living things use food, water and oxygen
- Living things use food for energy, respond to stimuli, expel materials they no longer need, can reproduce and eventually die

EXAMPLE QUESTIONS

- How can you tell something is alive?
- What do you think living things need to survive?
- How can you tell if something is not a living thing?

LIVING THINGS SHOW SIGNS OF LIFE

- Living things show the same characteristics of life.
- They respire, need food and water, and get rid of materials they no longer need.
- They are sensitive and react to stimuli.
- They grow reproduce and eventually die.

LIVING THINGS NEED FOOD

- Green plants produce their own food by photosynthesis.
- This is a process requiring carbon dioxide, water, light and a green colored pigment called chlorophyll.
- The food (a simple sugar manufactured by a plant through photosynthesis) is used by the plant itself, by animals that eat either the plant or other animals that have eaten the plant.

LIVING THINGS RESPIRE

- We are familiar with the way animals breathe, but it is more difficult to observe plants breathing.
- Breathing simply means taking in oxygen and giving out carbon dioxide and other gases.
- Living things need energy to enable their bodily processes to work (for example, moving and growing).
- The energy comes from green plants which change carbon dioxide and water to sugar in the presence of light energy and chlorophyll.
- Energy-rich foods, such as fats, starches and sugars, have energy 'locked' in them.
- The key to unlocking this energy is in the oxygen breathed by both animals and plants.
- The unlocking of energy is called respiration.
- Because animals, in general, are much more active than plants, they need more energy.
- Respiration is a chemical process that releases energy from sugar and gives off carbon dioxide and water as waste products.

LIVING THINGS EXPEL MATERIALS THEY NO LONGER NEED

- Respiration produces carbon dioxide and water.
- Other chemical processes in the body of living things produce material that are not used.
- These are expelled or excreted (for example, urine and faeces in mammals).

LIVING THINGS SHOW MOVEMENT

- In some living things, movement is so slow or in such small increments that it is impossible to observe.
- For example, it is difficult to see plants moving as they respond to light or gravity.
- Usually, the movement of animals is easily observed.
- Both animals and plants move in response to stimuli such as light and heat.