Year 6 Science

Scientific knowledge, investigation and evidence | Suggested time: 45-55 minutes | Name: _____ Date: _____

Student instructions: Work independently where possible. Show your reasoning and explain your ideas. You may leave a question and return to it.

Life and environments

1. Explain how a food chain might change if the population of insects falls sharply. Include producers and consumers.

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2. A plant kept in a cupboard grows pale and weak. Give a scientific explanation and suggest one fair test.

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3. Explain the difference between an adaptation and a learned behaviour, with one example of each.

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Materials, forces and energy

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1. Why does a metal spoon often feel colder than a wooden spoon in the same room? Explain using heat transfer.

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2. A toy car rolls farther on smooth tiles than on thick carpet. Suggest why and identify the force involved.

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3. A torch stops working. Give three possible causes and describe how to investigate them safely.

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Planning an investigation

1. A student wants to find out whether water temperature affects how quickly sugar dissolves. Write a testable question, independent variable, dependent variable, and three control variables.

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2. Describe a safe, repeatable procedure for the sugar investigation. Include how to record results and why repeats matter.

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Interpreting evidence

1. A seedling grew 2 cm, 3 cm, 3 cm and 4 cm over four weeks. Find total growth and average weekly growth. What conclusion can you make, and what can you NOT conclude?

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2. Two plants were given different amounts of water, but one was also placed in a darker room. Explain why the comparison is unfair and how to improve it.

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3. A class reports that “all magnets attract all metals.” Explain why this claim is too broad and suggest a way to test it.

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Parent Guide | Science

This is a formative assessment, not a standardised examination. Encourage independent thinking, record useful observations, and avoid comparing children solely by total score.

Suggested answers

1. Fewer insects may reduce food for insect-eating animals and change populations; specific outcomes depend on the food web.

2. Low light reduces photosynthesis; compare similar plants with light as the only changed condition.

3. Adaptation is an inherited feature helping survival; learned behaviour develops through experience.

4. Metal conducts heat away from skin faster than wood.

5. Greater friction on carpet slows the car.

6. Check batteries, contacts and bulb/LED connection with adult guidance; do not dismantle mains-powered devices.

7. Independent: water temperature. Dependent: time to dissolve. Controls: sugar mass/type, water volume, stirring method, container.

8. Measure water at set temperatures, add equal sugar, stir consistently, time dissolution, repeat trials and average results. Use warm, not dangerously hot, water with adult supervision.

9. Total 12 cm; mean 3 cm/week. Growth occurred, but the data alone cannot establish a cause.

10. Light and water both changed; keep light constant.

11. Only certain metals are attracted strongly by ordinary magnets; test safe samples of iron, aluminium and copper.

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What to look for

Distinguish observations from explanations; identify fair-test variables; use data to support claims; recognise when evidence is insufficient.

Reward precise reasoning and acknowledgement of uncertainty. Avoid marking an imaginative but unsupported explanation as correct.

After the assessment

Ask: Which question felt easiest? Which needed a different strategy? What would you try next time? Celebrate clear explanations as well as correct answers. Revisit one or two specific skills in short, supportive sessions.