Science 14

Unit D: Matter and energy in the environment

Ecosystem investigations

A warm jar of germinating seeds

- Germinating seeds release some thermal energy as they respire.
- A leaf kept in light can store energy as starch that an iodine test reveals.



Variables and a starch test

- The manipulated variable is the factor you change, such as paper waste or food waste.
- A starch test uses iodine: a blue-black colour marks starch in a leaf that has been in the light.

Key terms

manipulated variable

The factor the investigator changes on purpose.

responding variable

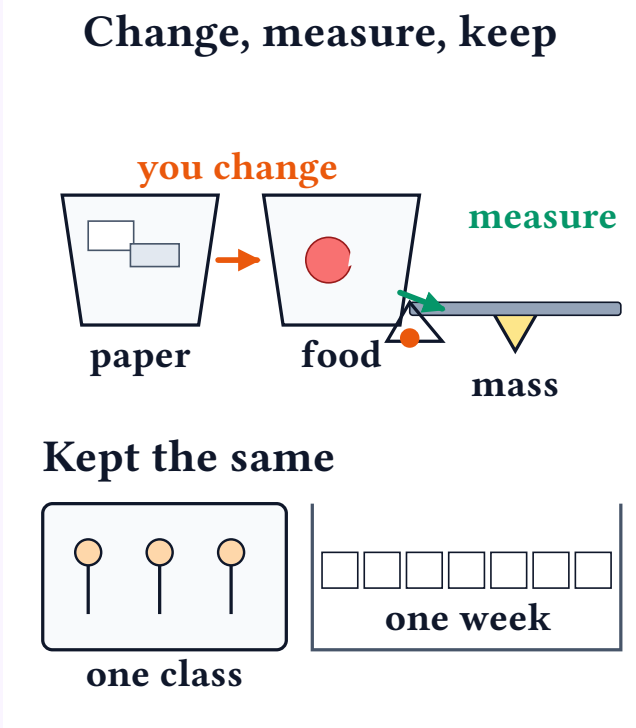
The factor the investigator measures to see the effect.

starch test

An iodine test: a blue-black colour marks starch stored in a leaf that has been photosynthesizing.

Variables and sources

- You choose the waste type, you measure the mass, and you keep the same class and the same week.
- Trust a source that names its author, shows a date, and gives evidence you can check.



Two seed jars

- The jars start at the same temperature.
- The jar of germinating seeds is warmer, so respiration released thermal energy.

Jars in different windows

- Sunlight on one jar is a second change.
- Keep the surroundings the same so respiration is the difference you measure.

Lit leaf and covered leaf

- One part of a leaf was in the light and one strip was covered.
- Say what the iodine colour tells you about stored starch.

Evidence and criteria

- Heat from seeds and starch in a lit leaf are measurable signs of energy transfer.
- A one-afternoon species list misses night animals. A source needs an author, a date, and evidence.

Image credits

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