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| **Topic** | Characteristics of living organisms (or any topic on plants) | **Level** | GCSE (or any course for students aged 11-16) |
| **Outcomes** | To use the characteristics of living organisms to find out if an object is living or non living. | | |
| **Information for teachers** | MRS GREN/NERG is often introduced as a list to learn without any time to use this knowledge. This activity asks students to use the characteristics of life, together with their knowledge of plants, to suggest some ways to determine if a plant is living or non-Living. This activity could be used after MRS GREN has been introduced to provide time for students to wrestle with these concepts, or perhaps to activate prior knowledge at the start of a plant unit e.g. photosynthesis.<br><br>This task might work well as a discussion task first, perhaps in pairs, and then students can complete the table on slide three once ideas have been shared as a class. | | |
| **Other resources** | Other resources on living and non-living are here: http://thescienceteacher.co.uk/mrs-gren | | |

# One plant is living, one plant is fake. How could you spot the fake?!

Plant A

Plant B

**How could you spot the fake and find out which plant is living?!**

Use your knowledge of photosynthesis and life processes to suggest as many different ways as possible.

| Life process | Experiment | What would you observe if the plant is living? | What would you observe if the 'plant' is non-living? |
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| Sensitivity | Shine a light source at the plants from one direction. | Overtime the plant will grow towards the light. | The plant will not respond to the stimulus (light). |
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# Some ideas you may have come up with.

- **Nutrition.** Place plants in a cupboard. The living plant will die and shrivel, losing the green colour from its leaves. It can not photosynthesise.
- **Respiration.** Measure the temperature of both plants using an infrared thermometer. The living plant will be at a slightly higher temperature because of respiration.
- **Reproduction.** Smell the flowers. The living plant will have scented flowers to attract pollinators.
- **Growth.** Cut both plants. The living plant will grow back.
- Place a plastic bag over both plants. Condensation will form in the bag over the living plant because of transpiration.
- Remove a leaf from each plant and place onto some soil. Overtime, the leaf from the living plant will decompose.