Jungle Detectives: Clay Pot

Sections

Joey Scouts
Cub Scouts
Scouts
Venturer Scouts
Rover Scouts

Scouts VICTORIA

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Challenge Areas

COMMUNITY
CREATIVE
OUTDOOR
PERSONAL GROWTH

Scout Method Elements

COMMUNITY INVOLVEMENT
LEARNING BY DOING
NATURE AND THE OUTDOORS
PROMISE AND LAW
PERSONAL PROGRESSION
PATROL SYSTEM
SYMBOLIC FRAMEWORK
YOUTH LEADING, ADULTS SUPPORTING

SPICES Growth Areas

CHARACTER
EMOTIONAL
INTELLECTUAL
PHYSICAL
SOCIAL
SPIRITUAL

The Adventure

While exploring the jungle, you come across an ancient temple. Entering one of the rooms, you notice a range of pots and other artifacts. Before you can look too closely, a person in a mask rushes past you and takes one of the pots. Once back from your adventures, you find someone trying to sell the pot but you suspect that it is a fake. Examine the ground up pot samples to determine if the pot is real or fake.

Plan

1. Investigate acids and bases and their properties, and how the react with each other. What acids and bases do you encounter in your everyday life?
2. Investigate the pH scale as a way to measure the strength of acids and bases. What is the pH of a weak acid, strong acid, weak base, and strong base?
3. Read the safety information and discuss with your leaders or another appropriate adult what safety equipment, precautions, and supervision may be required. Ensure that you have these safety measures in place before starting the ‘Do’ section.
4. Gather all the equipment that you need to test the clay pots. You will need the following equipment and ingredients: "clay pot" samples prepared as per the Jungle Detectives Clay Pot Analysis Preparation document (this will require sand, citric acid, containers, and measuring spoons), testing containers such as beakers, water, a small measuring cylinder, paddle pop sticks or a suitable stirring alternative, bicarbonate of soda, a tablespoon, a quarter teaspoon, a permanent marker, and pH testing strips.

Do

1. Ensure that the samples have been prepared as per the Jungle Detectives Clay Pot Analysis Preparation by someone who will not be analysing the samples. They should know which sample corresponds to the real pot but you should not.
2. Label your testing containers with "Sample A" and "Sample B".
3. Place two tablespoons of Sand A into the testing container marked Sample A.
4. Place two tablespoons of Sand B into the testing container marked Sample B.
5. Add approximately 2 mL of water to Sand A and mix with a paddle pop stick. The sample should have some liquid to it but not be too runny.
6. Add approximately 2 mL of water to Sand B and mix with a different paddle pop stick. The sample should have some liquid to it but not be too runny.
7. Take a pH testing strip and dip it into the mixture in Sample A. Try to cover at least half the length of the strip with the mixture.
8. Remove the strip from the mixture.
9. Repeat Steps 7 and 8 for Sand B.
10. Add 1/4 of a teaspoon of bicarbonate of soda to each of the sample mixtures and observe if it fizzes.
11. Compare your results to the properties of the real pot as described by the person who prepared the samples or using the scenario real pot features and decide if the pot is real or not.
12. Make sure to tidy up after your experiment.

Review

1. Did you successfully identify if the pot was real or not? Why or why not?
2. What did you enjoy most about this activity? What did you learn?
3. What other ways can you test pH?

Safety

- Bicarbonate of soda and citric acid may cause eye and skin irritation.

Variations

- This challenge card can pair well with other forensic science-based challenge cards such as other challenge cards such as the ‘Figuring Out Fingerprints’ series, Who Wrote It? Paper Chromatography, and other Challenge Cards from 'Jungle Detectives' to create a forensics program or a ‘Whodunit’ night.
- Other acidic or basic additives can be used if bicarbonate of soda or citric acid are not available. Vinegar and lemon juice are a good example of other good additives.
- Depending on the section, you can increase the difficulty of this activity by having the real pot sample also testable as a reference sample.
- Depending on the section and challenge area used, this challenge card can also be paired with a police station visit or some other law enforcement related community involvement.
- If you cannot access pH testing strips, there other methods for testing pH such as cabbage indicators.