

Immunology ‘Snot’

Background

This activity has been created to introduce students to immunology in direct relation to snot and the ways in which it is formed, what diseases can cause it, how to get rid of it and what its made of. It is an interactive type of learning which promotes learning through laboratory experiments to obtain knowledge. By using diagrams, cartoons, personal/educational questionnaires, a card game and entertaining videos, the students will understand all aspects of snot.

Equipment and Materials

How easily can this infection spread?

- Pre-prepared test tubes, half filled with distilled water, one for each student
- One pre-prepared test tube half filled with 0.1M NaOH
- Phenolphthalein solution (indicator)
- Pipettes

Let’s Be Scientists!

Task A: Making snot:

- 50 ml boiling water
- 1 teaspoon gelatine
- 1 teaspoon (5 ml) glucose syrup

- 10 ml measuring cylinder
- 2 x 100ml beakers
- 250 ml beaker
- Food colouring (optional)
- Small plastic measuring jug for measuring hot water
- Newspaper
- Stopwatch
- Rulers
- Pipette
- Protractor

Task C: Which snot works the best?

- 3 transparency sheets
- Particles: flour, glitter, confetti, pompoms (0.5cm diameter pieces)
- Wide sticky tape or small plastic bag
- Different snot mixtures
- Spatula
- Stapler
- Paint brush
- scissors

Methods

How easily can this infection spread?

1. Students will model the transmission of a disease by sharing some of their test tubes contents, or bodily fluids, with other students.
2. Each student is to take a pre-prepared test tube and one pipette, with one student unknowingly having the 0.1M NaOH test tube.
3. Students are to walk around the room with their test tubes. When you say ‘Stop!’ each participant is to use their pipette to trade one drop of fluid with the person nearest them. Repeat until three trades have occurred.

4. Now test for the infection! Put one drop of phenolphthalein in each test tube. If the fluid turns pink, the person is infected.

Let's Be Scientists!

Task A:

1. Add boiling water and gelatine to 250ml beaker and stir until dissolved.
2. Add glucose syrup and stir until mixed.
3. Let the mixture thicken for 15 minutes.
4. Add one drop of food colouring to make your snot look more realistic.

Task B:

1. Dilute the snot mixture in Task A, create two different consistencies of snot.
2. Calculate the dilution factor of each solution
3. Clean the white tile with paper towel and place newspaper on the bench, underneath the tile.
4. Tilt the tile on an angle of 40° (use a protractor to measure the angle).
5. Place 1 drop of three different snot consistencies at the top of a white tile, equal distances apart.
6. Measure the distance travelled down the tile over a specific amount of time.
7. Time or measure your snot running down the nasal passage (white tile).
8. Repeat the experiment.

Task C:

1. Drop 3 ml of one snot consistency on to the transparency sheet.
2. Use a paintbrush to paint the snot on to the transparency, keeping 3cm clear of the edges.
3. Repeat with the other snot consistency and the other transparency.
4. Keep one transparency free of snot.
5. Roll each transparency, lengthways, to 6cm in diameter and staple to hold in place. This simulates the nasal passage.
6. Cover one end of each rolled sheet with wide sticky

Hazards

Corrosive and harmful chemicals are in use as well as sharp tools.

Risk Management

- Students must be educated about laboratory safety before the activity
- Gloves must be worn during the activity
- Hands need to be washed after the activity.
- Food and drink is not allowed during activity
- Do not touch eyes, mouth or swallow substances.

Material Sources

Most of the equipment used in this activity are provided for students by the teaching faculty. The ingredients for making ‘snot’ are common home-ware products so can be generally found in most homes and/or supermarkets.

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