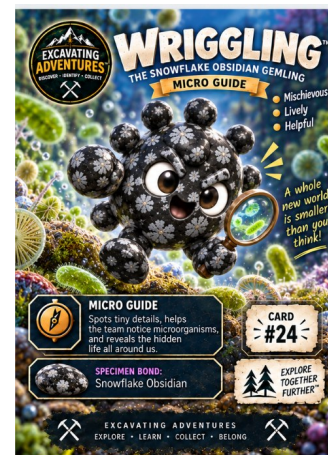


Helpful, Harmful & Evidence-Based Choices

Hidden Colony Vault with Wriggling

Learning target

Use evidence rather than appearance to discuss microbial roles.



Before you begin

Use the reference page and discussion prompts on their own, or open the optional browser adventure. No earlier lesson or physical kit is required.

For online play: use an internet-connected current browser with local storage enabled. Read the three-part Gemling briefing, answer the quick check, and apply the evidence at three checkpoints. Retry feedback supports review; results are not a secure test or gradebook.

Use for teacher-led review, science centers or partner practice. Independent readers may need support with the vocabulary below. The design target is grades 3-5; choose support based on the learner.

Vocabulary and concepts to discuss

Useful and harmful roles; spread overview; hygiene guidance; observation versus assumption

Open Hidden Colony Vault - direct lesson link

Scan the QR code or use the clickable link. This guide is usable offline; the adventure runs on an external educational website.



Helpful, Harmful & Evidence-Based Choices - key ideas

1. The first clues

Some microbes are useful; others can cause harm under certain conditions. Appearance alone may not identify a microbe or tell us whether something is safe.

2. How the clues connect

Evidence and supplied classroom guidance are better than guesses. We do not taste, touch or culture unknown samples in this adventure.

3. Our evidence record

Our fictional classroom record says an unknown growth was found on a sealed sample. The provided instruction is to leave it sealed and tell the grown-up in charge. This differs from the documented food-production use of known yeast.

Keep the science accurate

No culturing unknown microbes or handling mold. Viruses are not treated as cellular organisms. Avoid all-microbes-are-harmful framing.

Apply the evidence

Use a specific observation from this lesson to explain one choice. Point to a clue, then connect that clue to a scientific idea.

Curriculum reference: <https://www.nextgenscience.org/dci-arrangement/ms-ls1-molecules-organisms-structures-and-processes>

Talk through the evidence

1. Are all microbes harmful?

Expected answer: No

Reasoning: Some microbes are useful; others can cause harm under certain conditions. Appearance alone may not identify a microbe or tell us whether something is safe.

2. Can color alone establish safety?

Expected answer: No

Reasoning: Some microbes are useful; others can cause harm under certain conditions. Appearance alone may not identify a microbe or tell us whether something is safe.

3. Which action follows the supplied classroom instruction?

Expected answer: Leave the sample sealed and tell the grown-up

Reasoning: Our fictional classroom record says an unknown growth was found on a sealed sample. The provided instruction is to leave it sealed and tell the grown-up in charge. This differs from the documented food-production use of known yeast.

4. Why distinguish known yeast use from unknown growth?

Expected answer: They have different evidence and handling contexts

Reasoning: Our fictional classroom record says an unknown growth was found on a sealed sample. The provided instruction is to leave it sealed and tell the grown-up in charge. This differs from the documented food-production use of known yeast.

Guide the discussion

Ask learners to name the evidence that supports their answer. If an answer differs, revisit the matching key idea on page 2 and invite a revised explanation.

Online rewards: this lesson grants one fixed digital Expedition Discovery. Five saved digital Gemling friends become available only after all six distinct subject lessons are complete, in any order. Digital rewards do not establish physical ownership.