Lesson: Mountain Goat Escape

Background

What kind of feet help animals get around on rock or sand or snow or grass? In this lesson students will design and build different hooves to test their assumptions about what kinds of feet are best adapted to what kinds of habitat.

Materials

- **Hoof Material**
  - Film canister drilled for dowel
  - Modeling clay
  - 4" pieces of velcro
  - Pumice
  - Fake fur
  - Nylon screening
  - SpongeBubble wrap (different sizes)
- **Substrates**
  - Astroturf (simulated grass)
  - Plastic flakes/styrofoam beads (simulated snow)
  - Sand
  - Styrofoam painted like a rock
  - 4 plastic storage bins (shoebox size)
  - Rubber bands

Objective

Students will identify adaptations necessary for locomotion on various substrates. Students will develop a general principle about relations between animal feet and preferred habitat.

Procedure

1. Fill film canisters with clay and a dowel to represent the outer keratin layer of a hoof.
2. Students will design and construct four hooves using a variety of materials provided.
3. Students will test each hoof on each substrate.
4. Observe and record results.
5. Make any necessary modifications.

Challenge

- Identify greatest angle at which each hoof remains stable.

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Discussion Questions

1. What did you notice about your “hoof”?
2. Which hoof worked better on: Rock? Why? Sand? Why? Snow? Why? Grass? Why?
3. How do your hooves mimic those of real animals?
4. How does this activity relate to habitats where animals live?
5. What are some factors affecting animal choices of habitat?
6. How could we state a general principle about the relation between animals' feet and preferred habitat?

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