8-MS-LS1-4 Assessment-Dog Hair Traveling

Construct and use argument(s) based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of survival and successful reproduction of animals and plants respectively.

Brian has two dogs, Spot and Humphrey. In the spring time, Brian's back yard sprouts several types of clover. The seeds of the clover are found in abundance in the form of clover burrs.

Brian noticed that one of his dogs, Humphrey, picks up clover burrs on his hair while the other dog, Spot, rarely has any burrs on his hair.

The two dogs are shown in a picture for you to examine.

1. What might be a good explanation for why Humphrey picks up clover burrs on his hair?

    a. His hair is short compared to Spot's and thereby easier for a burr to attach on.
    b. His hair is longer than Spot's and seems finer, thereby providing an easier attachment for the burr.
    c. Spot's hair is light colored and thereby reflects the burrs away.
    d. Humphrey's hair is attractive in appearance, thereby helping to camouflage the clover burr.

2. Study the images of the clover burr.
   a. Describe the structure in a sentence(s).

   b. What about the clover burr structure would explain why Humphrey's hair collects them?

   c. A dog may carry the clover burr several hundred feet or farther from the original plant it formed on. In fact, the dog's owner may remove the burr, throw it in the trash or even discard it on the ground. How would these actions help the clover plant to increase in population?

3. Look at the three organisms that live in the back yard where the clover is found.

   a. Which creature shown is most likely to help transport the clover burrs?

   b. Explain or give a good argument as to why the creature you chose would most likely transport the burrs.

ANSWER KEY

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Item MC #1 b. B is the best answer because longer hair would have more area passing over a clover plant and therefore increase the possibility of snagging a burr.

Finer hair might also make it easier for the hooks on the burr to attach to the hair.

Item #2

a. The burr consists of a sphere with projections. The projections appear to have a hook like structure on them(students may not see this).

b. The burr appears to have nearly a hundred projections and possibly even little hooks on the end of the projections that might snag into the hair. The projections make it easier for at least a few of them to become tangled in the dog's hair.

c. The farther the seed burr moves from the original plant, the more possibility that will not be competing with the mother/sister plant for resources and space.

Item #3

a. The field mouse is the most likely to pick up clover burrs.
b. The field mouse has hair, is a mammal ..like the dog. The green anole lizard has no hair for the clover burr to attach to. The Starling has no hair, and though it has feathers, they are tightly packed to the starling's body. The starlings feet have no hair or feathers either.