Planarian Behaviors 5E Lesson Plan

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| Teachers: Ms. Cortinas, Ms. Delagarza, Ms. Devine, Ms. Dion, Ms. Flanigan, Dr. Jeffery, Ms. Stevens, Ms. Van Buren |
| Date: April 21st, 2016 (STEM Thursday) |
| Subject: ScienceGrade level: 3rd and 4th |
| TEKS:3.10(A) explore how structures and functions of plants and animals allow them to survive in a particular environment;(B) explore that some characteristics of organisms are inherited such as the number of limbs on an animal or flower color and recognize that some behaviors are learned in response to living in a certain environment such as animals using tools to get food; and**(4.10) Organisms and environments**. The student knows that organisms undergo similar life processes and have structures that help them survive within their environment. The student is expected to:(B) **demonstrate** that some likenesses between parents and offspring are inherited, passed from generation to generation such as eye color in humans or shapes of leaves in plants. Other likenesses are learned such as table manners or reading a book and seals balancing balls on their noses |
| Materials: * Copies of planaria lab
* Copies of inherited/learned behavior worksheet
* planaria
* Spring water
* Black cloth (2)
* Clear Containers (4)
* Liver
* Signs: Inherited behavior, learned behavior
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| Key Vocabulary: offspring, instinct, behavior, learned behavior, inherited behavior, adaptation |
| ENGAGE (5 minutes) 1. The students will watch a video:

 Six Almost Immortal Animals <https://www.youtube.com/watch?v=W382U0baxVA> 2. Give the students a brief explanation on what adaptations are and why all living plants and animals adapt.* When a plant or animal’s habitat changes, those with certain traits that help them will survive. Those that do not have helpful traits will die.
* Those that survive are the ones that become parents of new plants and animals, that get the same helpful traits as their parents.
* These helpful traits that are passed down from parent to offspring are called adaptations. Plants and animals all have special adaptations that help them live and survive in their habitats.

Eliciting Question:1. What does it mean to be immortal?
2. What are adaptations?
3. What adaptations help these living things to be almost immortal?
4. What are some other animals that have special adaptations?

Transition Statement: Now we are going to experiment with planaria flatworms to explore some of their other adaptations and behaviors. |
| EXPLOREEXPERIMENT ONE (10-15 minutes) PLANARIA REACTION TO SHADE/LIGHT1. Students will be set a table with a clear container of planaria and a black shade cloth.
2. The instructor at that table will explain how all planaria prefer shady dark to bright light because it helps them hide from predators better.
3. Planaria have developed simple eyespots that help them ‘see’ if they are in bright light or shady dark.
4. Instructor will then cover one half of the container, so half is shady, half is lighted
5. Students will be asked to make predictions on if they think the planaria will move from the light side to the dark side or not.
6. While waiting for the planaria, the students will complete a worksheet on their observations.
7. At the end of 10-15 minutes, students will evaluate the results and determine whether or not their predictions were right.

EXPERIMENT TWO (10 minutes) PLANARIA REACTION TO LIVER1. Students will be set a table with a clear container of planaria and a container of small pieces of liver.
2. Instructor will explain that like all animals, planaria need to eat. Even though it is not found in their natural habitat, in the care of people, planaria can develop favorite foods, like liver. Planaria can tell where food is because they can smell it underwater, just like we smell in air.
3. Instructor will place a piece of liver into the container near the planaria.
4. Students will be asked to make predictions about if they think the planarian will move to the liver and start to eat it.
5. While waiting for the planaria, the students will complete a worksheet on their observations.
6. At the end of 10-15 minutes, students will evaluate the results and determine whether or not their predictions were right.

Probing Question:1. How do planaria react to light? Is this a learned or inherited behavior?
2. How do they know if it’s light or dark?
3. How do planaria react to liver? Is this a learned or inherited behavior?
4. How do they know where the food is?

Transition Statement: Now that you have observed some behaviors of planaria, we will review some science vocabulary, and watch a video to show us about a special trait, called regeneration. |
| EXPLAIN (10 minutes) Video and POWERPOINT w/notes1. Students will explain their observed findings
2. Video: Planaria Flatwork Regenerations and Movement <https://www.youtube.com/watch?v=B8ikHvAWyhY>
3. Inherited and Learned Behavior Powerpoint

Questions: 1. What is a behavior?
2. What is an instinct?
3. What are examples of inherited behaviors? Learned behaviors?
4. Are all learned behaviors good/helpful?
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| Transition Statement: Let’s shift our focus of planaria traits to human traits. Do people have inherited traits and learned behaviors too? |
| ELABORATION (10 minutes) MY TRAITSStudents will be given worksheets, where they will be asked to answer questions about their own inherited/learned traits and adaptations.  Probing Questions:1. What inherited traits do you have?
2. What learned traits do you have?
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| EVALUATION (10 minutes) 1. Show video: [**https://www.youtube.com/watch?v=5ppBoPeSpxA**](https://www.youtube.com/watch?v=5ppBoPeSpxA) **Decapitated worms regenerate heads, memory and all**
2. Which of the traits on the video were learned? Inherited?

Transition Statement: Now that we have learned about inherited traits and learned behavior, let's test our knowledge with the next activity.Run to the Sign: Inherited or Learned?Two signs will be placed on opposite sides of the room, one that reads “learned trait” and another that says “inherited trait.” The instructor will say an animal/human and it’s corresponding trait out loud, and students will be asked to go stand by the sign they think represents the correct category the trait belongs to. |