|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Grade 5** | **Lesson:**  **Traits of Organisms Part 5**  **Comparing Inherited and Learned Traits** | | Reference to English Interconnections Lesson  Cause &Effect: Inheriting Traits pg. 97 | |
| **Science Standard(s): Standard 5 Objective 1** | | | | |
| **Content Objective(s):** | | **Language Objective(s):** | | |
| Students will be able to categorize traits of an organism as inherited, learned, or induced by environmental factors and explain their reasoning by creating a book of traits in small groups and presenting it to the class.  ***I can categorize traits of an organism as inherited, learned or caused by environmental factors and explain why by creating a trait book with a group of friends and presenting to the class.***  我可以把有机生物的特征/特性分类为由遗传而来、习得、或是受环境因素影响而形成的，并且能跟我的小组同学合作做出一本有关特征/特性的书，在班上展示给大家看并解释为什么这样分类。 | | Students will be able to identify and give examples of inherited, learned or traits induced by environmental factors by participating in a card activity in a small group.  ***I can identify and give examples of inherited, learned or traits induced by environmental factors by playing a game with a group of friends.***  ***我可以透过团体游戏，辨认出并且举例说明一些特征/特性是由遗传而来的、习得的、或是受环境因素影响而形成的。*** | | |
| **Essential Questions:**  *How can differentiate inherited traits from learned traits and behaviors?*  要怎么辨认经由遗传而来的特征/特性和后天习得的特征/特性及行为有什么不同？ | | **Required Academic Vocabulary for Word Wall:**  **Listen:** trait, inherited, learned, behavior, environmental factor  听：特征/特性，遗传而来的，习得的，行为，环境因素  **Speak:** trait, inherited, learned, behavior, environmental factor  说：特征/特性，遗传而来的，习得的，行为，环境因素  **Read:** (see Additional Lesson Vocabulary)  **Write:** trait, inherited, learned, behavior, environmental factor  写：特征/特性，遗传而来的，习得的，行为，环境因素  **Sentence Frames:**  This trait is \_\_\_\_\_\_\_\_\_\_\_ (inherited, learned, caused by an environmental factor) because \_\_\_\_\_\_\_\_\_\_\_\_\_.  这个特征/性是\_\_\_\_\_\_\_\_\_\_（遗传而来，习得，受环境因素影响），因为\_\_\_\_\_\_\_\_\_\_\_\_\_。  A \_\_\_\_\_\_\_\_\_ inherits \_\_\_\_\_\_\_\_\_ from \_\_\_\_\_\_\_\_\_\_\_\_.  一个/只\_\_\_\_\_\_\_\_\_从\_\_\_\_\_\_\_\_\_\_遗传了\_\_\_\_\_\_\_\_\_\_\_\_。  A \_\_\_\_\_\_\_\_\_\_\_ learns \_\_\_\_\_\_\_\_\_\_\_\_ from \_\_\_\_\_\_\_\_\_\_\_.  一个/只\_\_\_\_\_\_\_\_\_从\_\_\_\_\_\_\_\_\_\_学习到\_\_\_\_\_\_\_\_\_\_\_\_。  A \_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ because \_\_\_\_\_\_\_\_\_\_\_\_. (caused by an environmental factor)  一个/只\_\_\_\_\_\_\_\_\_会\_\_\_\_\_\_\_\_\_是因为\_\_\_\_\_\_\_\_\_\_（受环境因素影响） | | |
| **Materials:**   * Learned Trait Vocabulary Card * Game Cards * Book Pages | | **Additional Lesson Vocabulary:**  Ridden, saddle, bridle, leaning, sunflowers, willows, purrs, scratches, deer, bushes, coyote, meow, bark, high-pitched, cacti, bat, whistle, pot, violin  被骑，马鞍，缰绳，朝向，向日葵，柳树，咕噜咕噜的喉音，抓，鹿，树丛，北美小狼，喵喵叫，狗吠，声音尖锐的，仙人掌，蝙蝠，吹口哨，花盆，小提琴 | | |
| **Lesson:** | | | | **Instructional Time: 50 Minutes** |
| **Opening:** **(5 minutes)**  Hook: “Everyone with brown hair please stand up. You can sit down. Everyone with blue eyes please stand up. You can sit down. Everyone who is tall stand up. You can sit down.”  引起学生兴趣：“有咖啡色头发的人请站起来。你们可以坐下了。有蓝眼睛的人请站起来。你们可以坐下了。高的人请站起来。你们可以坐下了。”  Question: “What types of traits are these? Turn to your partners and tell them the name of these traits.”  问题： “这些是什么样的特征？请你告诉你的伙伴这些特征是属于什么特征。”   * Have the entire class respond, “Inherited Traits”.   Explain: “Yes, these are all inherited traits. You get these traits from your parents. Everyone who can whistle please stand up. You can sit down. Everyone who plays piano please stand up. You can sit down. Everyone who can skip please stand up. Everyone who likes pizza please stand up.”  解释：“对，这些特征都是遗传而来的特征。你的这些特征是遗传自你的父母。会吹口哨的人请站起来，可以坐下了。会弹钢琴的人请站起来，可以坐下了。会垫步跳的人请站起来。喜欢吃披萨的人请站起来。”  Question: “Are these inherited traits that you get from your parents? Turn to your partners and answer the question and explain your reasoning.”  问题：“这些特性是遗传自你的父母吗？请你把你的回答告诉你的伙伴并且解释原因。”   * Have a couple of students share their ideas.   Explain: “You are right. These are not inherited traits. You did not get these traits from your parents. Some of them you may have learned from your parents. Maybe you learned how to whistle, play piano or skip from your parents. Maybe you like pizza like your parents. But these are not inherited. These are learned traits and behaviors.”  解释：“说得对。这些不是遗传而来的特性。这些特性不是遗传自你的父母。有些特性像是吹口哨、弹钢琴、或是垫步跳可能是跟父母学的。可能你跟你的父母一样都喜欢吃披萨。但是这些特性都不是遗传而来的，它们是后天习得的特性和行为。”  Introduce the Objectives: Have the students read the content objective with their partners and tell each other one new skill they want to have by the end of this lesson.  **Introduction to New Material (Direct Instruction): (10 minutes)**  Explain: “We have learned a lot about inherited traits. We have learned that offspring inherit traits from their parents. There are some traits we have as humans that we don’t inherit from our parents, but we might share with them. Sometimes we can LEARN traits from our parents. A Learned Trait or Behavior is obtained by an organism often to survive. These behaviors can be learned by parents or learned by trial and error. (Show vocabulary card). For example, I might have eyes like my mother or hair like my father. These are inherited traits. I might play piano like my mother, or write poetry like my father. These are learned traits and behaviors. We might have these traits in common, but they are learned. Maybe I am shy or quiet like my father. This is a learned trait or behavior. Maybe I cry while watching happy or romantic movies like my mom. This is a learned trait or behavior.”  解释：“我们已经学过很多遗传而来的特征。我们学过后代从亲体那儿遗传了一些特征。作为人类，我们有一些特性并不是从父母那儿遗传而来的，但是可能我们跟父母都有相同的特性。有时候我们是跟父母学习到这些特性。这些习得的特性或行为常常是因为要生存下去，有时候可能是跟父母学的，有时候可能是从错误中学到的。（给学生看字卡）例如：我有跟妈妈一样的眼睛或跟爸爸一样的头发。这些都是遗传而来的特征。我可能像我妈妈一样会弹钢琴或是像我爸爸一样会写诗，这些是习得的特性和行为。我跟父母可能都有这些特性，可是它们是习得的。我可能像我爸爸一样害羞不爱说话，这也是习得的特性或行为。我可能跟我妈妈一样看到感人或是浪漫的电影就会哭，这也是习得的特性或行为。”  Question: “I want you all to think… what is one LEARNED trait or behavior you got from your mom or dad? Take about 30 seconds to think. (Wait 30 seconds). Turn to your partners and describe one learned trait you got from your parents.”  问题：“请大家想一下，你有哪一个特性或行为是跟你爸爸或妈妈学习而来的？请用三十秒钟的时间想一想。（等三十秒钟）请你跟你的伙伴表述一下你有哪一个特性或行为是跟你父母学的。”   * Have a couple of students share with the class what they discussed with their partners.   Explain: “Not only do humans have learned traits, but animals do as well. Animals sometimes learn their learned traits or behaviors from their parents, but sometimes it is learned from a human or its environment. A cat may inherit the trait to purr, but its ability to meow when it wants tuna is a learned behavior. A rat’s ability to wiggle its whiskers is an inherited trait, but its ability to run in the wheel is a learned behavior. A bear’s desire to hibernate in the winter is an inherited trait, but climbing a tree to eat honey is a learned behavior. Inherited traits come natural to the animals. They get those traits just by being that type of animal from their parents. Learned behaviors are learned from their parents, from humans, or nature teaches them to do those things for pleasure or to survive. “  解释：“不是只有人类才会有习得的特性，动物也有。动物有时候会跟亲体学习一些特性或行为，但是有时候它们也会跟人类或从生活的环境中学习。猫会发出咕噜咕噜的喉音可能是遗传而来的，但是当它想吃鮪鱼而喵喵叫的能力却是习得的。一只老鼠会动它的胡须是遗传而来的，但是它在轮子里转圈却是习得的行为。一只熊想要冬眠是遗传而来的特性，但是爬树去吃蜂蜜，却是习得的行为。遗传而来的特性是天生的，动物会有这些特性是因为它们生来就跟它们的亲体是一样的动物。习得的特性可能是从亲体那儿学到的，从人类学到的，或是为了好玩或生存而从自然环境中学到的。  Question: “I want you all to think… what is one LEARNED trait or behavior a dog may have learned? Take about 30 seconds to think. (Wait 30 seconds) Turn to your partners and describe one learned trait a dog may have learned from its parents, a human, or its environment.”  问题：“请大家想一想，狗有什么样的特性或行为是习得的？用三十秒钟的时间想一下。（等三十秒钟）请你跟你的伙伴表述一下狗有什么特性是跟它的父母、跟人类、或是从生活环境中学习而来的。”   * Have a couple of students share with the class what they discussed with their partners.   Explain: “Plants also have learned conditions, but we say they those traits are induced by environmental factors. Growing a stem, leaves and a flower are inherited traits. Facing the flower towards the sun is a trait caused by an environmental factor. The round shape of a willow is inherited, but leaning away from the wind is induced. I think these are a little harder to identify.”  解释：“植物有些特性也是习得的，但是我们会说这些特性是受环境因素影响而形成的。植物的茎、叶、和花会长大是遗传而来的。但是花会朝着有阳光的地方开却是受环境因素影响而形成的。柳树枝叶下垂呈圆形是遗传而来的，但是它朝向背风的地方生长却是受环境因素影响而成的。这些特性可能比较难辨认。  Question: “I am going to give you a specific example and I want you to think of a possible trait this tree may acquire that is caused by this environmental factor. Let’s imagine there is an apple tree in a pasture with sheep and goats. How might this tree’s traits be affected by an environmental factor? Take about 30 seconds to think. (Wait 30 seconds) Turn to your partners and share your ideas about a trait this tree may acquire that is induced by an environmental factor such as the sheep and goats.” (Apples may grow near the top of the tree where the sheep and goats would not eat them. Branches may only grow near the top of the tree. The tree may adapt without bark, or it may acquire thicker, stronger bark to prevent the animals from eating it)  问题：“我现在要举一个特别的例子，请你们想一想这棵树有一个特性是受环境因素影响而形成的。现在我们来想象一下在一个有一些绵羊和山羊的牧场里种着一棵苹果树。这棵树可能会受环境影响而产生什么特性？用三十秒钟的时间想一想。（等三十秒钟）请你告诉你的伙伴，你觉得这棵树可能会受环境因素影响，例如那些绵羊和山羊，而形成的特性是什么。”（苹果可能会长在比较高的树梢，这样绵羊和山羊就吃不到。树枝也可能会长在比较高的地方。这棵树也可能适应没有树皮也能生长，或是它的树皮会变得比较厚比较坚韧，这样可以避免动物们来吃它。）   * Have a couple of students share with the class what they discussed with their partners.   **Guided Practice: (12 minutes)**   * Put students in groups. Pass out a set of cards and labels to each group. Post the sentence frames on the board.   Explain: “We are going to play a game and practice identifying traits that are inherited, learned and induced by an environmental factor. You will also have to explain why and how you know. If the trait is inherited, each member of the group will have to identify a learned or environmentally caused trait related to that organism. If the trait is learned or environmentally caused, each member of the group will have to identify a trait that is inherited related to that organism. You will play in small groups.”  解释：“我们现在要玩一个游戏来练习辨认哪些特性是遗传而来，哪些特性是习得的，哪些特性是受环境因素影响而形成的。你也要解释你为什么这样分类和你的原因。如果这个特性是遗传而来的，小组的每一个成员就要辨认出这个有机生物还有哪些别的特性是习得的或是受环境因素影响而形成的。如果这个特性是习得的或是受环境因素影响而形成的，那小组的每个成员就要辨认出这个有机生物的另外一个由遗传而来的特性。我们现在分小组来玩这个游戏。”    *Use the modeling cycle:*  *Teacher Does:*   * Use puppets, stuffed animals or imaginary group members to model. Pick out a card. The group reads the card together. “A horse can be ridden with a saddle and a bridle.” （有一匹马会让人佩戴马鞍和缰绳来骑上它）Using the sentence frame, categorize the organism and explain why. “This trait is learned because not all horses can be ridden with a saddle and a bridle, and it did not naturally acquire this trait from its parents or simply by being a horse.” （这个特性是习得的，因为不是每一匹马都能够让人佩戴马鞍和缰绳来骑。这个特性也不是从马的亲体那里遗传来的或是任何一匹马的天性。） Place the card under the ‘Learned Traits’ label. Use the puppets, stuffed animals or imaginary group members to go around the group and state inherited traits for a horse. “A horse inherits its mane from its parents.” “A horse inherits its hooves from its parents.” “A horse inherits its whinny from its parents.” “一匹马从它的亲体那里遗传到它的鬃毛。一匹马从它的亲体那里遗传到它的马蹄。一匹马从它的亲体那里遗传到它的马嘶声。”   *Teacher Does with a Student:*   * Call up a group of students to help you model. Pick out a card. The group reads the card together. “A boy is tall like his dad.” “有一个男孩跟他的爸爸一样高。”Using the sentence frame, categorize the organism and explain why. “This trait is inherited because his dad is tall, so he is tall, and it is not something that is learned from his parents.” “这个特性是遗传而来的，因为他的爸爸很高，所以他也很高，这个特性不是从父母那里学习而来的。”Place the card under the ‘Inherited Traits’ label. Now prompt the other group members to take a turn mentioning a learned trait the boy might have. “A boy learns to skip from his dad.” “A boy learns to play piano from his mom.” “A boy learns to whistle from his dad.” “有一个男孩从他的爸爸那里学到垫步跳。有一个男孩从他妈妈那里学到弹钢琴。有一个男孩从他爸爸那里学到吹口哨。”   *Group of Students Do:*   * Call a group of students up to help you model. They pick out a card and the group reads the card together. “The tree is leaning away from the tall building.” “有一棵树朝向背着高楼的方向生长。”The first student uses the sentence frame, categorizes the organism and explains why. The student may need help from the group or the teacher. “This trait is caused by an environmental factor because the tree is learning to lean away from the building so it can have room to grow, or maybe so it can get more sun. This is not something a tree typically does or something it learned to do from its parents.” “这个特性是受环境因素影响而形成的，因为这棵树朝向背着高楼的方向生长，这样它才有足够的空间生长，或是它才可以多得到一些阳光。这不是一般树的特性，也不是这棵树从它的亲体那里学习而来的特性。”The student should place the card under the ‘Caused by an Environmental Factor’ label. Now prompt the other group members to take a turn mentioning an inherited trait the tree might have. “A tree inherits its bark from its parents.” “A tree inherits its branches from its parents.” “A tree inherits its leaves from its parents.”“一棵树从它的亲体那里遗传到它的树皮。一棵树从它的亲体那里遗传到它的树枝。一棵树从它的琴体那里遗传到它的叶子。”   *All Students Practice:*   * The students can all begin the game in their groups. Be sure to walk around to the different groups and help and guide them. This should be a practice that is guided by the teacher and supported by the other members in the group. Students should feel comfortable to make mistakes and try again during this practice. Encourage students to also get creative with the language. They can break away from the sentence frames if it is more natural to use their own language. Ensure the students understand the task, are working together and are talking in the target language.   **Independent Practice: (20 minutes)**   * Pass out book pages to each group.   Explain: “You will now be making a trait book in your small groups. Each group member will select 2-3 cards. Each member of the group will make a page for each of their cards (2-3). On one side of the page you will write about the trait described on the card, and on the other side you will write about a different trait for that same organism. Each side will need a title labeling the type of trait (inherited or learned), at least one sentence describing that trait, and a picture. For example, if your card describes an inherent trait of an animal you will draw and write about that trait on one side of the page. On the other side of the page you will draw and write about a learned trait for that same animal. You can use the sentence frames to prompt your writing, or you can use language that is more natural to you. After you have completed pages for your group, you will put them together to make a book. The group can use construction paper to make a cover for the book, and the group can come up with a creative title for your book. You will then present a couple of the pages of your book to the class.”  解释：“现在你和你的小组成员要做一本关于特征/特性的书。每一个小组成员都会选两、三张卡片，每个成员要把那几张卡片都做成书页。在书页的一面你要根据卡片上面的陈述写出那是什么特性，在书页的另外一面你要写出这个有机生物的另外一个特性。在书页的每一面，你都要把这个特性分类（遗传而来的还是习得的），然后在这一面的上方写标题，另外最少还要写一个句子来陈述这个特性，并且画一张图。例如：如果你的卡片上陈述一只动物从父母那里遗传而来的特性，你就要在书页的一面画出并且写下那个特性。在另外一面你就要画出并且写下那只动物另外一个习得的特性。你可以用我们固定的句型来写你的句子，或者你要用自己的话来陈述也可以。在你做好你负责的书页以后，小组成员就要把所有的书页放在一起做成一本书。你们可以用图画纸来做书的封面，然后给你们的书起一个有创意的书名。最后你们要在班上展示你们这本书的其中几页。”    *Use the modeling cycle:*  *Teacher Does:*   * Quickly model the process of selecting cards and making the pages for the book. The language will be the same as above, so focus on the procedure of how students should divide up the cards, title each side of the page with the type of trait (inherited, learned, or caused by environmental factors), write a description, and draw a picture for each side of the page, for each of their cards.   *Teacher Does with Student:*   * Call up a student to help you model. Model the process with the student, focusing on the procedure.   *All Students Practice:*   * All students should divide up the cards in their groups. They should begin writing and drawing their pages. Ensure they understand the content and the procedure. When the groups finish, have them come up in front of the class and present their books by each student choosing a page to present. Ensure students are staying in the target language.   **Closing: (3 minutes)**  Revisit the Objectives: Have students reread the content objective as a class. Have students explain to their partners one new skill they learned today, and how they know they learned it. Have some students share with the class.  Real World Application: Challenge students to go home and analyze their families and pets. Have them discern which traits were inherited and which were learned. Provide time in a future lesson to share what they discovered at home. | | | | |
| **Assessment:** | | | | |
| Observe students during guided and independent practice. Collect their books if you would like to assess their application of the content objective. Observe their conversations during the game and their presentations in front of the class to assess their mastery of the language objective. | | | | |
| **Extra Ideas:** | | | | |
|  | | | | |

**LEARNED TRAIT/ BEHAVIOR** A behavioral trait obtained by an organism often to survive. These behaviors can be learned by parents or learned by trial and error.



**习得的特性/行为**

有机生物的行为特性常常是为了生存而产生的。

这些行为可能是从亲体那里学习而来的或是从错误中学习而来的。

  

|  |  |
| --- | --- |
| A horse can be ridden with a saddle and a bridle. | A boy is tall like his dad. |
| The tree is leaning away from the tall building. | The garden of sunflowers are leaning towards the sun. |
| Willows are leaning away from the wind. | A willow has a round shape. |
| The dog scratches at the door when it needs to go to the bathroom. | A cat purrs when it is happy. |
| The baby cries when he is hungry. | The baby has blue eyes like his mom. |
| The cat meows when it wants to be let out of the house. | The dog has a high-pitched bark. |

|  |  |
| --- | --- |
| 有一匹马会让人佩戴马鞍和缰绳来骑上它。 | 有一个男孩跟他的爸爸一样高。 |
| 有一棵树朝向背着高楼的方向生长。 | 花园里的向日葵都朝向有太阳的方向生长。 |
| 柳树朝向背风的地方生长。 | 柳树枝叶下垂呈圆形。 |
| 小狗想上厕所的时候会抓门。 | 猫高兴的时候会发出咕噜咕噜的喉音。 |
| 小婴儿饿的时候会哭。 | 小婴儿有一双像他妈妈一样的蓝眼睛。 |
| 猫想要出去的时候会喵喵叫。 | 有一只狗吠声尖锐。 |

|  |  |
| --- | --- |
| A girl likes to read books. | A boy’s favorite food is spaghetti. |
| A deer eats bushes in someone’s front yard. | A plant has leaves and stems. |
| A coyote avoids cacti. | A bat can fly. |
| A boy can whistle. | A boy learns to ride a bike. |
| The leaves change colors in the fall. | A plant stops growing because it is getting too big for its pot. |
| A girl plays violin like her mother. | A boy has curly hair like his dad. |

|  |  |
| --- | --- |
| 有一个女孩子喜欢看书。 | 有一个男孩子最喜欢的食物是意大利面。 |
| 有一只鹿喜欢到一个人的前院吃他家树丛的叶子。 | 一棵植物有叶子和莖。 |
| 北美小狼不喜欢仙人掌。 | 蝙蝠会飞。 |
| 有一个男孩子会吹口哨。 | 有一个男孩子学会骑自行车。 |
| 树叶会随着季节变换颜色。 | 有一棵植物停止生长因为它的花盆太小了。 |
| 有一个女孩子跟她妈妈一样会拉小提琴。 | 有一个男孩子跟他爸爸一样有卷发。 |

|  |
| --- |
|  |
|  |