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| **Grade 5** | **Lesson:** **Matter Part 2** | Reference to English Interconnections LessonConservation of Matter pg. 159 & Physical Change pg. 161 |
| **Science Standard(s): Standard IObjective 1 & 2** |
| **Content Objective(s):** | **Language Objective(s):** |
| Students will be able to demonstrate a physical change to an object by participating in an activity with a small group.***I can show a physical change to an object by participating in an activity with a group of friends.***我能在小组活动中给大家展示一个物体的物理变化 | Students will be able to describe a physical change to an object by participating in an activity with a small group and by providing a written description with a partner.***I can explain a physical change made to an object by participating in an activity with a small group and by writing a description with a partner*.**通过和我的小组搭档写一个说明，我可以向同学们解释一个物体的物理变化。 |
| **Essential Questions:***What are characteristics of matter? How do physical and chemical changes affect matter?* | **Required Academic Vocabulary for Word Wall:****Listen:**matter, solid, liquid, gas, physical change, properties, characteristics物质，固体，液体，气体，物理变化，属性，特性**Speak:** matter, solid, liquid, gas, physical change, properties, characteristics物质，固体，液体，气体，物理变化，属性，特性**Read:** **Write:** solid, liquid, gas, physical change, properties, characteristics物质，固体，液体，气体，物理变化，属性，特性**Sentence Frames:**The process of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a physical change because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_的过程是物理变化，因为\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Materials:*** Balance
* Apple
* Knife
* Cup of frozen water
* Microwave or heat lamp
* Ziplock bags of cereal- 1 for every group of students
* Ziplock bags of popcorn kernels- 1 for every group of students
* Ziplock bags of popped popcorn- 1 for every group of students
* Vocabulary Card
* Paper- 1 sheet for every group of students
* Reese’s Peanut Butter Cups- 1 for every group of students
* Playdough or clay- 1 portion for every group of students
* Exit Slip- 1 for every student
 | **Additional Lesson Vocabulary:**Smell, look, taste, feel, cereal, popcorn, apple, water, paper, candy, playdough/clay**闻，看，尝，感觉，麦片，爆米花，苹果，水，纸，糖，橡皮泥/黏土** |
| **Lesson:** | **Instructional Time:40 Minutes** |
| **Opening:(5minutes)**Hook:Put an apple on a balance and find out its mass. Cut the apple into pieces.Question: “Do you predict the mass of the apple cut in pieces will be more, less or the same? Discuss with your partners.”**和你的搭档讨论一下，如果苹果被切成块，它的质量是变多了，变少了，还是一样？** * Have some students share their responses with the class. Place the slices back onto the balance to find that its mass is still the same.
* Show the class a frozen cup of water. Put the cup of ice on a balance and find out its mass. Place the frozen cup in the microwave or under a lamp to melt the ice.

Question: “Do you predict the mass of the ice will be more, less or the same when it melts into water? Discuss with your partners.”**和你的搭档讨论一下，如果冰变成水，它的质量是变多了，变少了，还是一样？** * Have some students share their responses with the class. Place the cup of water back onto the balance to find that its mass is still the same.

Explain: “We have learned that the mass of the whole should match the mass of the pieces.Water changing from a solid to a liquid did not change its mass. It is still water, whether in solid or liquid form. Let’s look at our learning objective for the day.”**我们学过，整个物体的质量和部分物体质量的总和是相等的。水从固体到液体并没有改变它的质量。无论是液体还是固体，它还是水。****让我们来看看我们今天的学习目标。**Introduce the Objectives: Have the students read the content as a class. Have Partner 1 tell Partner 2 one thing the class will learn today. Have Partner 2 tell Partner one how we will know that we learned it.**Introduction to New Material (Direct Instruction): (7 minutes)**Explain: “When the cup of water changed from a solid to a liquid, it went through a change. We call this a physical change. It looked different physically after it melted, but it was still water.”当一杯水从固体别成液体，它发生了变化，我们称它为物理变化。这杯水在融化后从物理上看起来改变了很多。但它依然是水。 * Pass out a ziplock bag of cereal to each group of students.

Question:“What are the physical characteristics of this cereal? What does it look like, smell like, taste like? Talk in your groups.”和你的小组一起讨论， 这个麦片的物理特性是什么？ 它看起来，闻起来，尝起来像什么？* Have students share with the class what they discussed with their groups. Have students crush up the cereal in the bag.
* Question:“What are the physical characteristics of this cereal now? What does it look like, smell like, taste like? Discuss with your groups.”

和你的小组一起讨论，现在这个麦片的物理特性是什么？ 它看起来，闻起来，尝起来像什么？* Have students share with the class what they discussed with their groups
* Explain:“We learned that it looks different than it did before. But it smells and tastes the same. It is still cereal. Its physical appearance may have changed, but it is still cereal.”
* 我们认识到，麦片看起来和原来不一样了。但是闻起来和尝起来还是一样的。他依然是麦片。他的物理外表改变了，但是它还是麦片。
* Pass out bags of popcorn kernals to each group.

Question:“What are the physical characteristics of this popcorn? What does it look like, smell like, taste like? Talk in your groups.”和你的小组一起讨论，爆米花(没爆之前的玉米)的物理特性是什么？它看起来，闻起来，尝起来像什么？* Have students share with the class what they discussed with their groups. Pass out bags of popped popcorn to each group.
* Question:“What are the physical characteristics of this popcorn now? What does it look like, smell like, taste like? Discuss with your groups.”

和你的小组一起讨论，现在这个爆开的爆米花的物理特性是什么？ 它看起来，闻起来，尝起来像什么？* Have students share with the class what they discussed with their groups.
* Explain:“We learned that it looks different than it did before. It has a different texture, and the smell and taste become stronger. It is still popcorn. Its physical appearance may have changed, but it is still popcorn.”
* 我们认识到，爆米花看起来和原来不一样了。但是闻起来和尝起来还是一样的。他依然是麦片。他的物理外表改变了，但是它还是麦片。
* Question:“What is a good definition for a physical change? Talk with your groups and come up with a good definition.”
* Have students share with the class what they discussed with their groups.

什么是一个好的关于物理变化的定义。和你的同学们商量一下，提出一个好的定义来。Explain:“A physical change is when the appearance of a substance may change, but what it is made of does not change.” Post vocabulary card. “You all came up with some great definitions. 物理变化是指一个物质的 外表发生了变化，但是构成这个物质的东西没有发生任何变化。 “你们都提出了非常好的定义”**Guided Practice: (15 minutes)*** You will give groups of students different objects and give them the opportunity to be creative. They can do whatever they want with that object to show a physical change. They will take turns presenting to the class the different ways they chose to show a physical change. Take this opportunity to correct students if they do something that is NOT a physical change, such as a chemical change. This will prepare them for the next lesson.
* Pass out a piece of paper to each group. Have them work together to show a physical change to that piece of paper. Walk around and remind students of the definition of physical change. Ensure students are working together and talking in the target language. They should be discussing their ideas. When all groups finish, have each group take a turn standing up and presenting their physical change to the class. Ensure more than one student is doing the talking and the presenting. Post the sentence frame students can use, but they should feel free to use natural language.
* Pass out a Reeses Peanut Butter cup to each group. Have them work together to show a physical change to the candy. Walk around and talk with students, and ensure they are working together and talking in the target language. When all groups finish, have each group take a turn standing up and presenting their physical change to the class. Ensure more different students are doing the talking and presenting this time compared to last.
* Pass out a chunk of playdough or clay to each group. Have them work together to show a physical change to the candy. Walk around and talk with students, and ensure they are working together and talking in the target language. When all groups finish, have each group take a turn standing up and presenting their physical change to the class. Ensure more different students are doing the talking and presenting this time compared to last.

**Independent Practice: (10 minutes)*** Pass out an exit slip to every student. Tell students they are going to work in partnerships to complete this exit slip, which is similar to a quiz. There will be the name of an object and some lines below. They will need to talk with their partner about how they could make a physical change to that object. Then, they will each write down something that they discussed on their own exit slip. They must talk quietly so that other partnerships don’t hear their answers.
* Walk around and ensure students are staying in the target language and only talking with their partners, in a quiet voice. Collect exit slips when the students are finished and use them as an assessment.
* **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: Tell students to observe their parents when they are cooking. Decide which things their parents are doing are physical changes, such as when they are cutting, blending, boiling, warming and mixing. Provide an opportunity in a future class period for students to share their observations with partners or with the class. |
| **Assessment:** |
| Observe students’ conversations during guided and independent practice to assess their mastery of the language objective. Observe students’ different examples of physical changes during the guided practice to assess their mastery of the content objective. Collect their exit tickets as a formative assessment of the language and content objectives. |
| **Extra Ideas:** |
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**PHYSICAL CHANGE** when the appearance of a substance changes, but what it is made of does not change; it still holds on to its properties and characteristics

物理变化

一个物质的 外表发生了变化，但是构成这个物质的东西没有发生任何变化。他的属性和特性都没有变化。



Exit Slip

出门小条

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2. Plastic Cup 塑料杯

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3. Potato 土豆

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