Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour \_\_\_\_\_\_\_\_\_\_\_\_\_

 **Tablecloth Challenge**

**Focus Question:** How can a tablecloth be pulled off a set table without breaking anything?

**Objective:** Develop a model to show what happens when variables are changed in an investigation.

**Demo:** After watching the initial table cloth demonstration. Draw what happened below. What forces may have been taking place to cause the action? <https://www.youtube.com/watch?v=o94Pm-Cty3M>

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**Demo B:** Watch the second video and add to your illustration. <https://www.youtube.com/watch?v=lK1ci50DUgc>

 **Student Task**

**Materials**

-Tablecloth -flat table -plastic tableware

-heavy objects (fruits and veggies)

**Directions:**

1. Set your table
2. Record your setup
3. Pull your table cloth and record.
4. Complete trail two and three.
5. Change one variable before each new trial
6. Watch <https://www.youtube.com/watch?v=1CX0uDD4sXY>

|  |  |  |
| --- | --- | --- |
| **Trials/Variables** | **Labeled Diagram of setup** | **Observations of items motion or lack of motion** |
| 1. |  |  |
| 2. |  |  |
| 3. |  |  |

**Comprehension Questions Day 1**

1. Select two of your variables (objects) that behaved differently. Why did some objects behave the way they did and how does that relate to friction?

     2. What is friction? Are there different kinds of friction?

**Day 2**

1. Using our visual tools to draw force, please draw a summary of what happened yesterday during the tablecloth challenge.

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| --- | --- |
| Tablecloth challenge | Skateboard Jump |

2. Watch the Skateboard Jump video. Draw a model of what happened in the skateboard video above. Compare and contrast the skateboard jump to the tablecloth challenge. How are they similar and different? <https://www.youtube.com/watch?v=2MUlhxkpiTw>

3. What phenomena is occurring?

4. How did the tablecloth challenge help me understand this phenomenon?

5. How did the Skateboard Jump help me to understand this phenomenon?

**Part 2:** With your table partner read the article Types of Friction. Answer the questions throughout the article below using complete sentences with a restate.

1. Can you think of other examples of static friction?

**2.**  How does sliding friction help you ride a bike?

3. List four types of friction.

4. You can move heavy boxes by sliding them over the ground. Or you can put them on a dolly, like the one in the **Figure** [(from](https://www.ck12.org/physics/types-of-friction/lesson/Types-of-Friction-MS-PS/#x-ck12-TVNfUFMtUHVzaGVy) the article), and then roll them over the ground. Explain which way makes it easier to move the boxes.

**Part 3**: Watch the video <https://www.youtube.com/watch?v=cP0Bb3WXJ_k>

Describe three important facts that you can take away from the video

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