

Teacher / Team Name: 2nd Grade

Topic: Science Second Grade Pushes and Pulls

Days: 47

Subject(s):

Grade(s):

Key Learning: Forces can cause a change in the motion of objects.



Unit Essential Question(s):

How do forces change motion? How do we measure motion?



Concept:

Objects pull or push each other when they collide or are connected. Pushes and pulls can have different strengths and directions.

Concept:

Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it.

Concept:

An object sliding on a surface or sitting on a slope experiences a pull due to friction on the object due to the surface that opposes the object's motion.



Lesson Essential Question(s):

How can we investigate the effect of pushes and pulls in different directions on the resulting motion of objects? (A)

How can we investigate the effect of pushes and pulls of different strengths on the resulting motion of objects? (A)

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How can we investigate the effect of pushes and pulls in different directions on the resulting motion of objects? (A)

How can we investigate the effect of pushes and pulls of different strengths on the resulting motion of objects? (A)

How can we plan and carry out investigations of how the change in motion and/or shape when objects touch or collide is related to the speed of the objects? (ET)

Lesson Essential Question(s):

How can we analyze data to determine the relationship between friction and the motion of objects? (A)



Vocabulary:
push, pull

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| <p>Concept: When objects touch or collide, they push one another and can change motion or shape.</p> | <p>Concept: Whether an object stays still or moves often depends on the effects of multiple pushes and pulls on it (e.g. multiple players trying to pull an object in different directions.) It is useful to investigate that pushes and pulls keep something in place (e.g. a ball on a slope, a ladder leaning on a wall) as well as what makes something change or move.</p> | <p>Concept: A bigger push or pull makes things go faster. Faster speeds during a collision can cause a bigger change in shape of the colliding objects.</p> |
| <p>Lesson Essential Question(s): How can we plan and carry out investigations of how the change in motion and /or shape when objects touch or collide is related to the speed of the objects? (ET)</p> | <p>Lesson Essential Question(s): How can we construct an explanation for why an object subjected to multiple pushes and pulls might stay in one place or move? (ET)</p> | <p>Lesson Essential Question(s): How can we investigate the effect of pushes and pulls of different strengths on the resulting motion of objects? (A) How can we plan and carry out investigations of how the change in motion and/or shape when objects touch or collide is related to the speed of objects? (A)</p> |
| <p>Vocabulary:</p> | <p>Vocabulary:</p> | <p>Vocabulary:</p> |

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Concept:

When two objects rub against each other this interaction is called friction. Friction between two surfaces can warm both of them (e.g. rubbing hands together). There are ways to reduce the friction between two objects.



Lesson Essential Question(s):

How can we analyze data to determine the relationship between friction and the motion of objects? (A)

How can we analyze data to determine the relationship between friction and the warming of objects? (A)

How can we develop and share a design solution to reduce friction between two objects? (A)



Vocabulary:

Additional Information:

Assessment boundary: Simultaneous pushes and pulls to be along a single line; pushes and pulls to be between objects in contact. Students not to be assessed on quantitative relationships.

Assessment boundary: pushes and pulls should be between objects in contact.

The data analyzed should be focused on observations on the interaction between objects and the type or slope of the surface. For example, an object sliding on a rough vs. smooth surface on a slope.

Data should be observations that allow students to compare the effects of rubbing objects together. Assessment boundary: Observation of warming is qualitative.

Examples of ways to reduce friction include putting lubricant on a surface to make objects slide more easily.

Attached Document(s):

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Vocab Report for Topic: Science Second Grade Pushes and Pulls

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Grade(s):

Concept: Objects pull or push each other when they collide or are connected. Pushes and pulls can have different strengths and directions.

push -

pull -