⚙ Lesson Plan: Work and Machines

Grade Level: 3
Subject: Physical Science
Duration: 45–60 min
NGSS 3-PS2-1: Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.

🎯 Learning Objectives

By the end of this lesson, students will be able to:

- **Define** work as force applied to an object causing it to move.
- **Identify** the six types of simple machines: lever, wheel and axle, pulley, inclined plane, wedge, and screw.

- Printed copies of the Study Guide (https://newpathworksheets.com/api/guide/study-guide-science-grade-3-work-and-machines-1.pdf)
- Vocabulary Worksheet (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-3-work-and-machines-1-1.pdf)
- Activity Lesson: Labeling Machines (https://newpathworksheets.com/api/activity-lesson/activity-lesson-science-grade-3-work-and-machines-1-work-machines-4.pdf)
- Practice Worksheet (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-work-and-machines-1-3.pdf)

- Assessment Quiz (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-work-and-machines-1-0.pdf)

Lesson Procedure

Step 1: Introduction (5 minutes)

- Engage students by asking: "If I push against this wall as hard as I can but it doesn't move, have I done any work?"
- Introduce the scientific definition of work using the Study Guide. (https://newpathworksheets.com/api/guide/study-guide-science-grade-3-work-and-machines-1.pdf)

Step 2: Direct Instruction (15 minutes)

- Use the Study Guide to define the six simple machines: lever, wheel and axle, pulley

3-work-and-machines-1-work-machines-4.pdf)

- Assign the Practice Worksheet for students to identify machines and definitions independently. (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-work-and-machines-1-3.pdf)

Step 5: Assessment (10 minutes)

- Administer the Multiple Choice Quiz to check for mastery of the lesson objectives. (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-work-and-machines-1-0.pdf)

- Review the answers to clarify any remaining misconceptions about simple machines.

Differentiation Strategies

For advanced learners:

- Challenge students to identify compound machines in the classroom that combine two or more simple machines.

For learners needing support:

- Provide real-life examples (like a screw or a toy car) for students to manipulate while learning the definitions.

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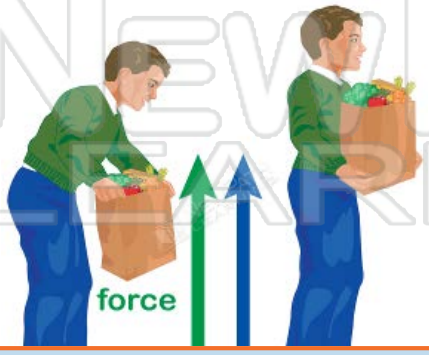
- Worksheet PDF 2 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-work-and-machines-1-1.pdf)
- Worksheet PDF 3 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-work-and-machines-1-2.pdf)
- Worksheet PDF 4 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-work-and-machines-1-3.pdf)
- Vocabulary PDF (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-3-work-and-machines-1-1.pdf)

WORK AND MACHINES

Work is when you use force upon an object causing the object to move. The amount of work you do has to do with how much force you need to use and how far you move an object. You would do more work lifting a heavy desk than you would lifting a pencil.



A **wedge** is a simple machine made of wood or metal that has a pointed edge and two slanted sides. A **wedge** is actually two inclined planes put together. A **wedge** is often used to split wood, to cut things, or to hold things together.

fixed point. You can push down on one side to raise an object on the other side. **See saw** is an example of a lever.

A **wheel and axle** is a simple machine made up of a pole and a wheel that revolves, or turns, around on the pole to move something. A door knob is an example of a wheel and axle, where the knob moves the lock so you can open the door.

PREVIEW

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Work & Machines

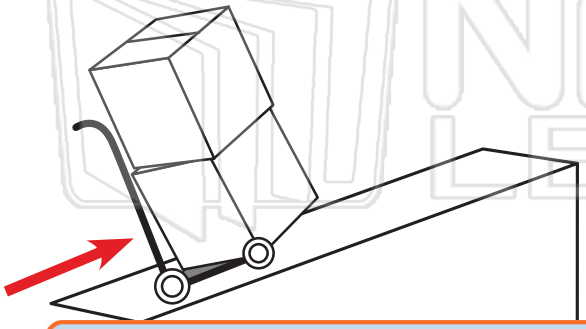
Sci C

Name _____ Class _____ Date _____

Work = **force** used on an object causing the object **to move**

Simple machines make doing work easier but they never decrease the amount of work that needs to be done. There are many different kinds of simple machines.

Inclined Plane

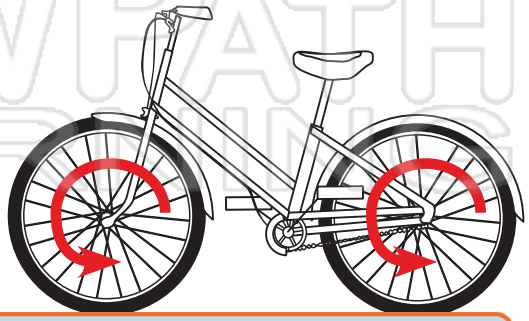


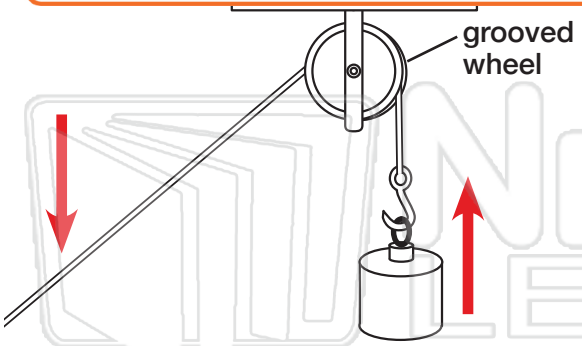
A pla… or
objec…

incline
plane,

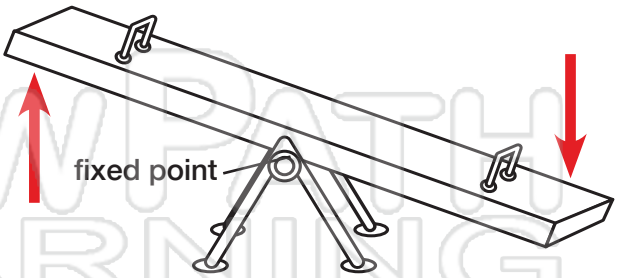
An in… often
mainl…

Wheel & Axle





Made up of a wheel with a grooved rim in which a rope can move around in order to help lift a load.



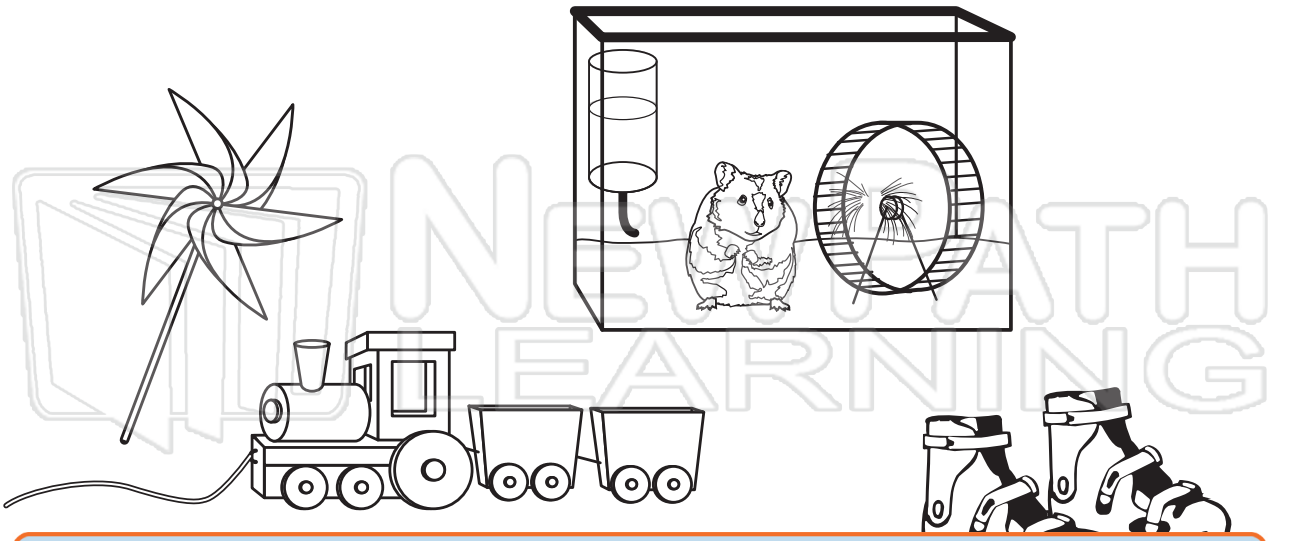
A bar which rests and moves on a fixed point, used to raise an object on the other side.

Work & Machines

Sci C

Name _____ Class _____ Date _____

A **wheel & axle** can do many things! How many wheels do you see?



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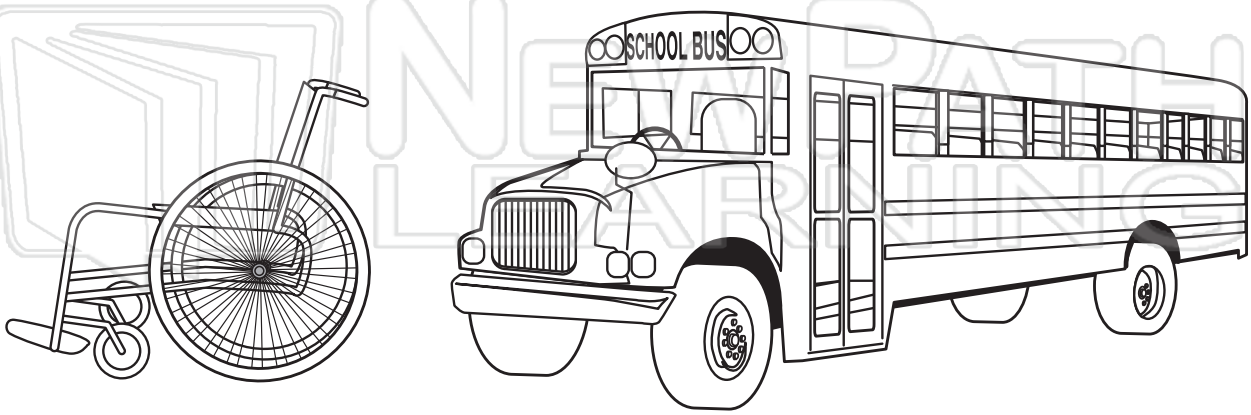
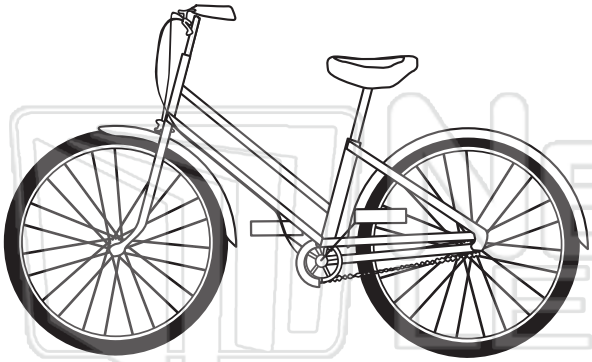


Work & Machines

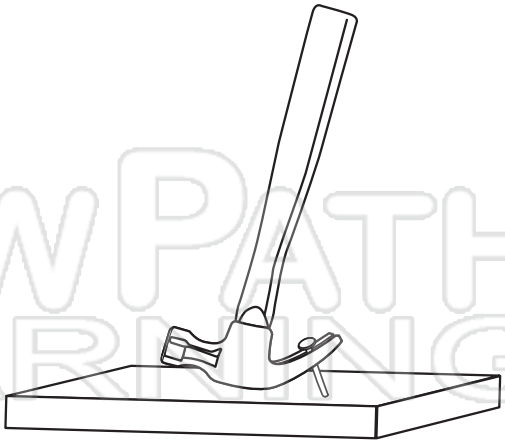
Sci C

Name _____ Class _____ Date _____

Circle the name of the **simple machine** being used.



pulley wheel & axle



wheel & axle lever

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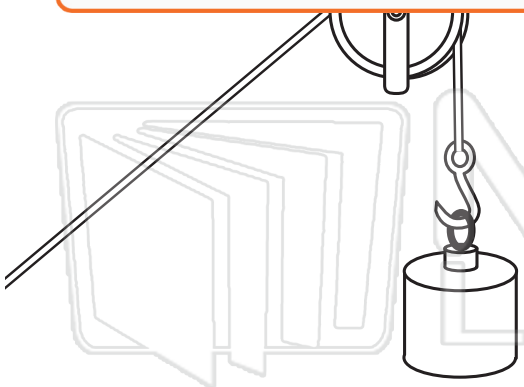
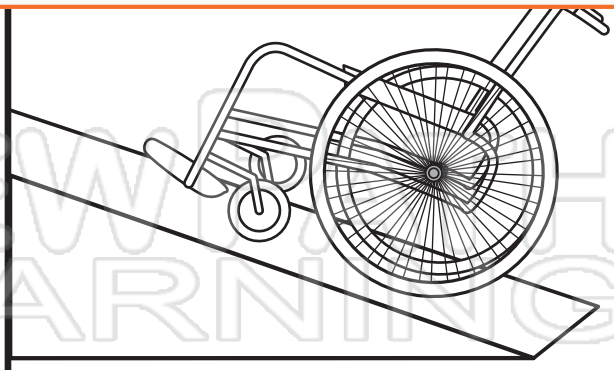


lever pulley



lever inclined plane

Work & Machines

Sci C

Name _____ Class _____ Date _____

Which tool makes **moving** objects **easier**? Check the box.

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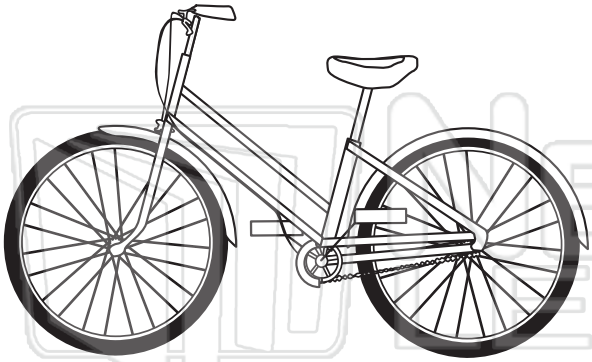
Work & Machines

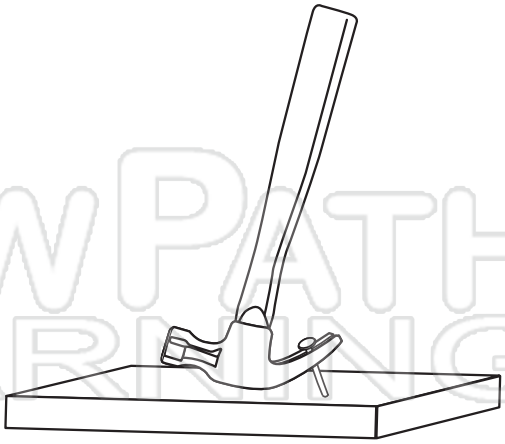
Sci C

Answer Key

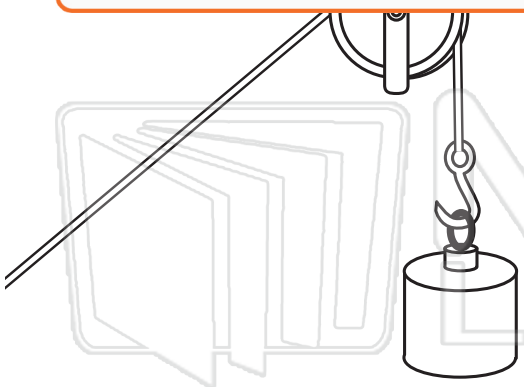
Circle the name of the **simple machine** being used.



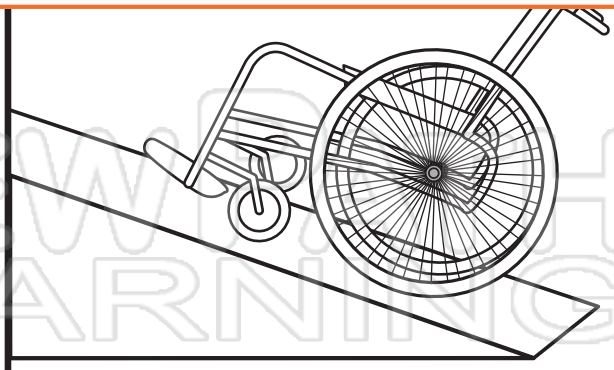
pulley **wheel & axle**



wheel & axle **lever**



lever **pulley**



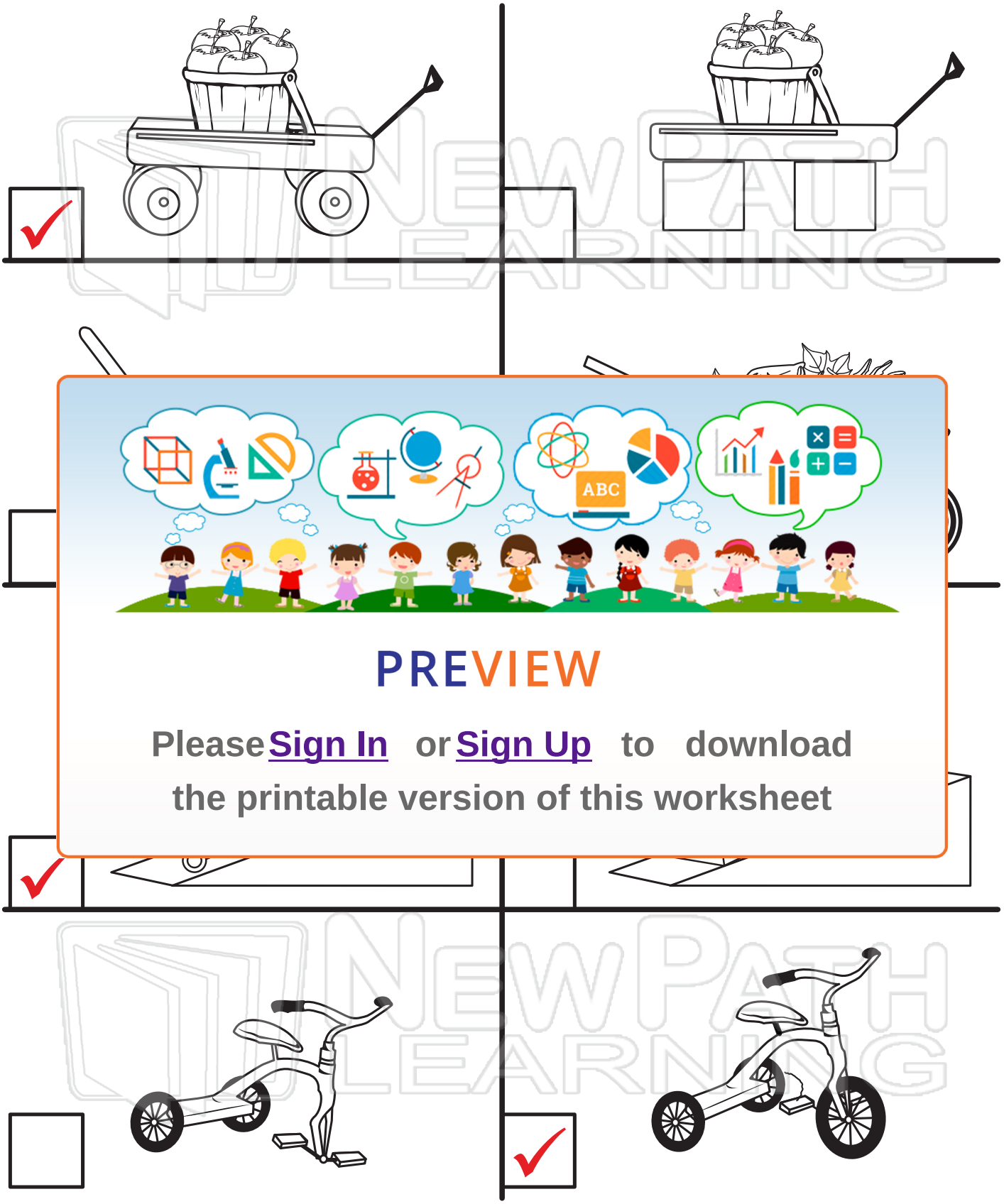
lever **inclined plane**

Work & Machines

Sci C

Answer Key

Which tool makes **moving** objects **easier**? Check the box.



PREVIEW

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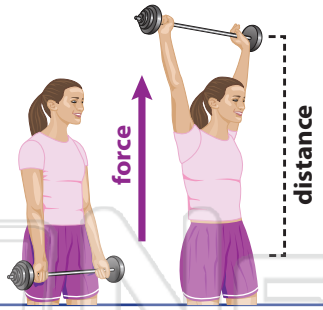
Work and Machines

Sci C

Name _____ Class _____ Date _____

1 _____ is when you use **force** upon an object causing the object to move.



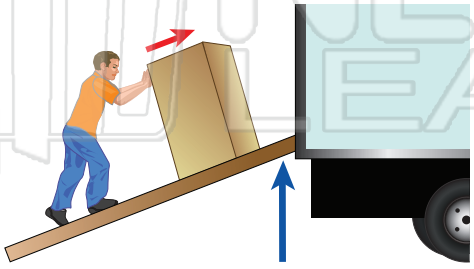
2 Cross out the example of **work** not being done.

3 C... le...

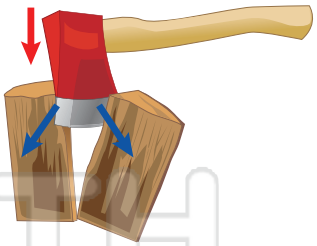
4 S... e... o...

True or False?

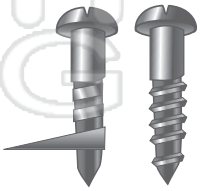
5 What **simple machine** is pictured here?



6 What type of **simple machine** is often used to split wood or to cut things?



7 A _____ is an **inclined plane** that is wrapped around a nail.

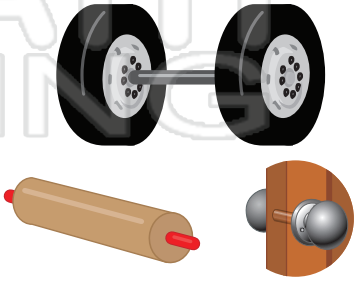


...achine

...push ...ct on

...to help lift a load?

10 What **simple machine** is pictured here?

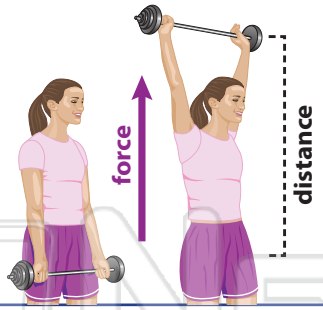


Work and Machines - Answer Key

Sci C

Name _____ Class _____ Date _____

1 Work is when you use force upon an object causing the object to move.



2 Cross out the example of work not being done.

3 C... le...

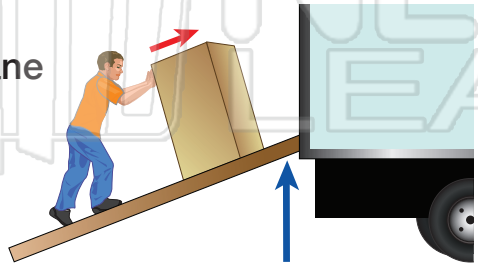
4 S... e... o...

True or False?

True

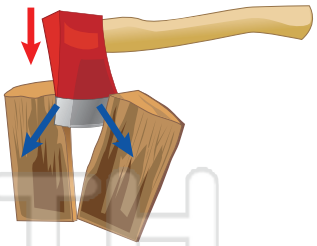
5 What simple machine is pictured here?

inclined plane

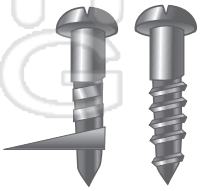


6 What type of simple machine is often used to split wood or to cut things?

wedge



7 A screw is an inclined plane that is wrapped around a nail.



...achine

...push ...ct on

PREVIEW

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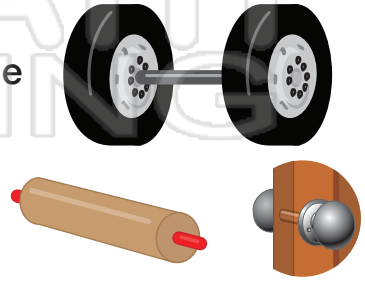
...to help lift a load?

pulley

10 What simple machine is pictured here?

wheel and axle



Work and machines

Sci C

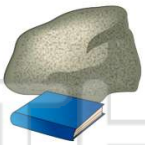
Name_____ Class_____ Date_____

1 _____ is when you use **force** upon an object causing the object to move.

A Volume
B Mass
C Work
D Friction

2 The **amount of work** you do has to do with how much force you need to use and how far you move an object. Which example would require **more** work?

A moving a book
B lifting up a heavy rock
C picking up an eraser
D pushing a toy car



3 If you **do not move an object**, no matter how hard you push or pull, _____ work is being done.

A no
B some
C always
D never

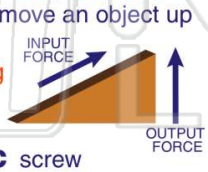
4 Which of the following is an example of **work not being done**?

A person pushing crate across floor
B girl taking a book off the shelf to her desk

5

7

9 A(n) _____ is a **simple machine** that connects a higher area to a lower area, allowing you to move an object up or down by rolling or sliding it without lifting the object directly.



A inclined plane
B lever
C screw
D wheel and axle

10 Which is an example of an **inclined plane**?

A table
B counter
C ramp
D chair

Work and machines

Sci C

Name_____ Class_____ Date_____

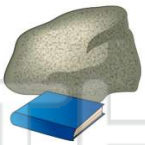
1 _____ is when you use **force** upon an object causing the object to move.

A Volume
B Mass
C Work
D Friction

C

2 The **amount of work** you do has to do with how much force you need to use and how far you move an object. Which example would require **more** work?

A moving a book
B lifting up a heavy rock
C picking up an eraser
D pushing a toy car



B

3 If you **do not move an object**, no matter how hard you push or pull, _____ work is being done.

A no
B some

A

4 Which of the following is an example of **work not being done**?

A person pushing crate across floor
B girl taking a book off the shelf to her desk

D

5

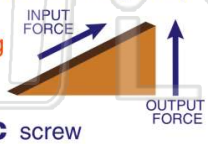
A

7

C always
D never

B

9 A(n) _____ is a **simple machine** that connects a higher area to a lower area, allowing you to move an object up or down by rolling or sliding it without lifting the object directly.



A inclined plane
B lever
C screw
D wheel and axle

A

10 Which is an example of an **inclined plane**?

A table
B counter
C ramp
D chair

C

Work and machines

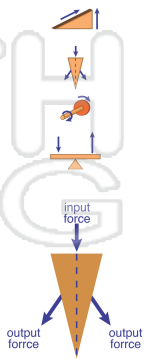
Sci C

Name_____ Class_____ Date_____

Match each of the following terms to its definition:

Lever	Pulley	Wheel and axle	Work
Simple machine	Inclined plane	Screw	Wedge

1. - machines that make doing work easier but they do not decrease the amount of work that needs to be done



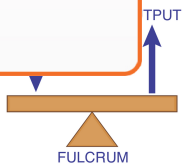
2. - a simple machine made of wood or metal that has a pointed edge and two slanted sides; a simple machine that is used to push things apart

3. revolv

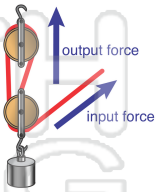
4. conne
down

5. aroun

6. side t



7. - a simple machine that is used to lift things



8. - the force used upon an object causing the object to move; the ability to move an object

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Work and machines

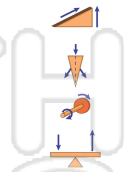
Sci C

Name_____ Class_____ Date_____

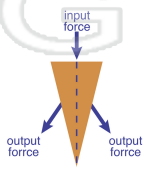
Match each of the following terms to its definition:

Lever	Pulley	Wheel and axle	Work
Simple machine	Inclined plane	Screw	Wedge

1. simple machine - machines that make doing work easier but they do not decrease the amount of work that needs to be done



2. wedge - a simple machine made of wood or metal that has a pointed edge and two slanted sides; a simple machine that is used to push things apart

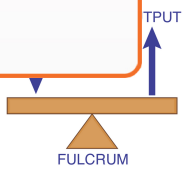


3. wh
revolv

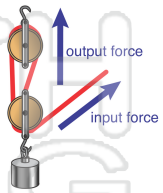
4. inc
conne
down

5. scr

6. lev
object



7. pulley - a simple machine that is used to lift things



8. work - the force used upon an object causing the object to move; the ability to move an object