2nd Grade Physical Science Curriculum Map

The 15 experiments relate to four aspects of physical science:

- **Movement: Properties of Solids, Liquids, and Gases**
- **Buoyancy and Boats**
- **Magnets**
- **Hot and Cold Temperature.**

In each section, you will find teacher notes designed to provide you guidance with the learning intention, the success criteria, materials needed, a lesson outline, as well as provide some insight on what results to expect when the experiments are conducted.

Suggestions for differentiation are also included so that all students can be successful in the learning environment.

15 experiments:

Experiment One: The Inclined Plane

Students will learn how the inclined plane is used in daily life to make tasks easier by moving an object from one elevation to another.

Experiment Two: The Wedge

Students will learn how the wedge is used to lift or split things apart.

Experiment Three: The Screw

Students will learn how a screw works as a simple machine to fasten things together.

Experiment Four: Levers

Students will learn how levers work to move or lift heavy things.

Experiment Five: The Pulley

Students will learn how a pulley makes lifting objects easier.

Experiment Six: Wheel And Axle

Students will learn how a wheel and axle works together to make moving an object easier.

Experiment Seven: Compound Machines

Students will learn how simple machines work together in many objects we use each day to make everyday tasks easier

Experiment Eight: Solids, Liquids, Gases

Students will learn about the properties of solid materials, liquids, and gases.

Experiment Nine: Mixing It Up!

Students will learn about the interactions of solids and liquids, and how water is interchangeable from a solid, a liquid, and a gas.

Experiment Ten: Sink Or Float?

Students will learn about the buoyancy of different materials, and use this knowledge to design and build a floater.

Experiment Eleven: Ships Ahoy!

Students will learn about stability, load carrying, and how watercraft can be propelled.

Experiment Twelve: Magnetism

Students will learn that magnets attract certain materials, and that same type poles repel while opposite poles attract.

Experiment Thirteen: Magnetic Strength

Students will learn about the effects of magnetic strength and how magnets move and hold things together.

Experiment Fourteen: Hot And Cold Temperature

Students will use a thermometer to measure temperature and learn to describe temperature using expressions such as hotter than or colder than.

Experiment Fifteen: Insulators

Students will learn how insulation is used to keep things hot or cold.

Compound Machines

Learning Intention:

Students will learn how simple machines work together in many objects we use each day to make everyday tasks easier.

Success Criteria:

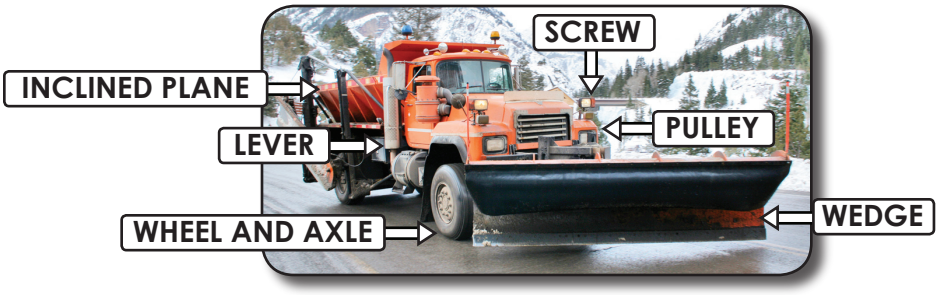
- identify objects that use more than one simple machine to operate
- label the simple machines found in certain objects
- create an advertisement to promote the use of an object, outlining the advantages that its simple machine mechanisms have for people (make tasks easier or more enjoyable)
- make conclusions about the advantages in the use of simple machines
- make connections to people and the environment

Materials Needed:

- a copy of "Compound Machines" worksheet 1 for each student
- a copy of "Simple Machines Make Things Easier!" worksheet 2 and 3 for each student
- a copy of "Compound Machines Crossword Puzzle" worksheet 4 for each student
- pencils, markers, pencil crayons

Procedure:

1. Explain to students that an object can be made up of more than one simple machine. When an object uses simple machines to work together to make an everyday task easier, we call it a compound machine. Give students worksheet 1. Read through the description of a compound machine, using the picture to explain how simple machines can work together to make an object operate. Prompt students to think about some other objects they know of that use more than one simple machine to operate to make a task easier. Students will label the simple machines found on the dump truck.



2. Explain to students that they are going to choose an object and create an advertisement for it, being sure to include what it does, what simple machine(s) it uses, how it moves, and how it makes tasks easier or provides fun for people. Students will complete worksheet 2 and 3.
3. Give each student a copy of the "Compound Machines Crossword Puzzle" to complete.

Differentiation:

Slower learners may benefit by working with a peer in order to choose an object and answer guiding questions on worksheet 2 together. The poster could then be completed as a team or done independently.

For enrichment, faster learners could turn their poster advertisement into a commercial advertising the advantages of their object. They could perform it for the class.

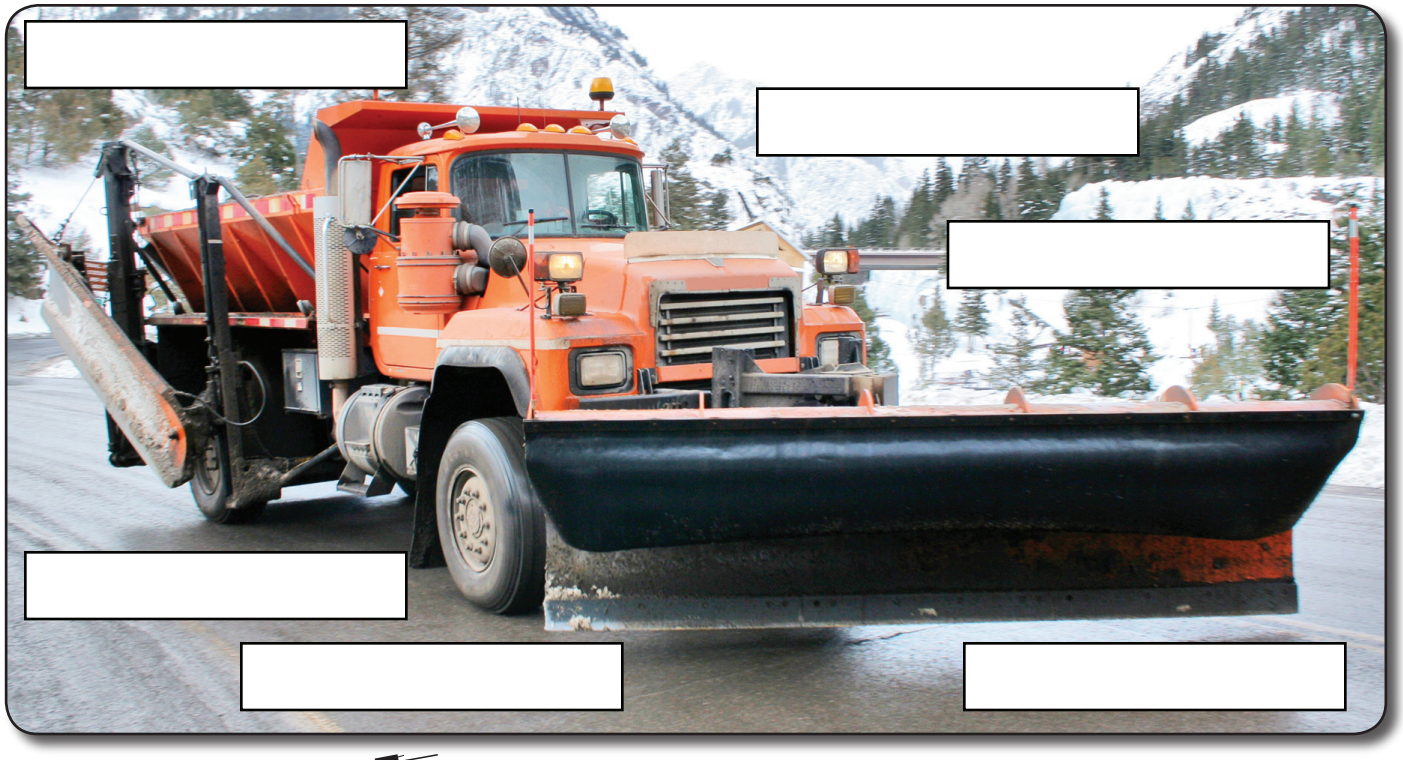
OTM-2145 ISBN: 9781770787889

Worksheet 1 Name: _____

Compound Machines

We use simple machines each day. Sometimes they work together and are called a **compound machine**. For example, a bicycle is a compound machine because it is made up of **levers, wheels and axles, inclined planes, pulleys,** and **screws**.

Find and label six simple machines on the picture below.



Worksheet 2

Name: _____

Simple Machines Make Things Easier!

You know a lot about simple machines and how they make everyday tasks easier. Some objects are even fun to use because of the simple machine used to operate it, for example the wheel and axle system on skateboards brings enjoyment to people who like riding them.

LET'S GET ON TASK!

Your task is to create an advertisement for an object. In your advertisement it will be important to include what simple machine(s) your object uses, what your object does, and how it moves or works to make tasks easier or to provide enjoyment for people. Answer the questions in the chart below to help guide you in creating a great advertisement.

NAME OF OBJECT: _____	
What does it do?	
What simple machine(s) does it use?	
How does it move?	
How does it make tasks easier or provide fun for people?	

OTM-2145 ISBN: 9781770787889

Worksheet 3

Name: _____

Simple Machines Make Things Easier!

GET CREATIVE

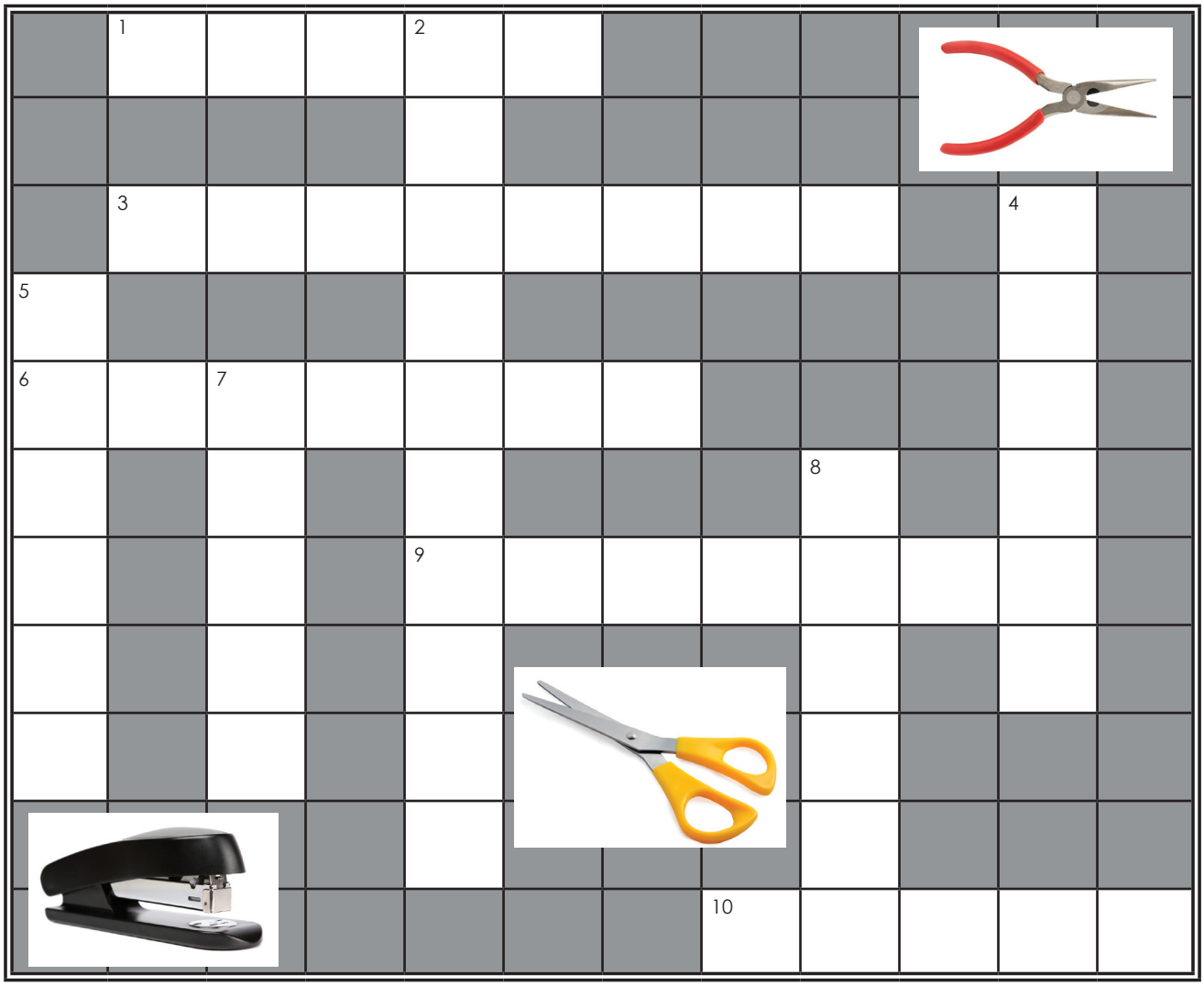
Design your poster to advertise the advantages of your object.

OTM-2145 ISBN: 9781770787889

Worksheet 4

Name: _____

Simple Machines Crossword Puzzle



ACROSS

1. used to join things together
3. a machine with more than one simple machine
6. the support on which a lever rests
9. something you can use to do work
10. A _____ separates or lifts

DOWN

2. a test to discover something
4. a small wheel and rope
5. give it your best try
7. a bar which turns on a fulcrum
8. An inclined plane is a _____ machine

OTM-2145 ISBN: 9781770787889