Physical Science

The **Physical Science** program effectively introduces students to physics and builds their understanding of the physical world. **Physical Science** features 100 activities that cover all of the major topics in the physical sciences. A series of audio instructions and help buttons ensure that students will navigate these activities easily and with confidence. **Physical Science** is a compelling and effective way to develop young students' skills in physical science and their understanding of the physical world.

Targeted Skills

- Students are introduced to basic structures and are taught the principle of stability.
- The six simple machines are introduced and their real-life uses are explored.
- Changes of state are introduced and students learn to predict an imminent change.
- Introduces the concept of energy and teaches its various sources, forms and conversions.
- Covers the basic sources, types, behaviors and common uses of motion, heat, light and sound energy.
- Teaches the principles of magnetic attraction, repulsion and polarity. The magnet unit also shows students how magnet strength is related to distance, how magnets can work through certain objects and some common uses for magnets.

Teacher Dashboard

The Teacher Dashboard tracks student progress throughout each program and records the percentage score for every activity completed. This feature provides an overview of how well a student is progressing and allows the teacher to identify strengths and weaknesses.

- Records students' results automatically as they work.
- Prints reports quickly and easily for sharing with parents and staff.
- Provides summary reports by subject or detailed reports by activity.
- Allows teachers to print reports for individual students or an entire class.
- Stores student marks in one central location for all programs.

Program Outline

The program is broken down into 9 units. On the following pages, each of the programs' units are broken down. The units are:

1 - Properties of Matter

2 - Buildings and Machines

3 - Changing Matter

4 - Energy

5 - Motion

6 - Heat

7 - Light

8 - Sound

9 - Magnets

1 - Properties of Matter

ACTIVITY NAME	INSTRUCTION	REQUIRED SKILLS
Important Words	Students must click on the correct definition of the word they see.	Understand basic terminology of physical properties - shape, texture, size, compare, property, natural, man-made.
What Shape is This?	Students must identify the shape of the object that they see.	Describe objects based on one characteristic.
Pick the Texture	Students must compare two objects and click on the object which matches a given texture description.	Compare objects based on one characteristic.
Color and Shape	Students must click on the best description of the color and shape of the object that they see.	Describe objects based on two characteristics.
Biggest to Smallest	Students must click on a series of printed objects in order from biggest to smallest.	Sort objects based on one characteristic.
Comparisons	Students must compare two objects and click on the true entries in a series of statements.	Compare objects based on two or more characteristics.
Sort Objects	Students must sort a series of objects into three groups based on what the objects are made of.	Sort objects based on one characteristic.
What's it Made Of?	From a given series of pictures, students must click on the objects made of wood, plastic, metal or fabric.	Identify which material a given object is made of.
Natural or Man-Made?	Students must identify whether a given object is natural or man-made.	Understand the difference between natural and man-made things and identify familiar objects appropriately.
Unit Test	Various questions on properties of matter.	Understand the basic properties of matter.

2 - Buildings and Machines

ACTIVITY NAME	INSTRUCTION	REQUIRED SKILLS
Building Words	Students must click on the correct definition of the word they see.	Understand the basic building terminology.
What Structure is This?	Students must identify which structure is shown in a given picture.	Understand the basic structures - bridge, dam, tunnel, arch, dome, tower.
Good or Bad Change?	From a written architectural change, students must identify whether the change will make a building more or less stable.	Understand the concept of stability. Understand the characteristics that make a building stable or unstable.
The Tallest Building	Students are walked through an experiment where two towers are built from blocks. They learn why some buildings stand stable and others do not.	
Weak or Strong?	Students must identify whether a pictured structure of blocks is stable or not.	
What Built This Structure?	Students must identify whether a given structure was built by humans, animals or nature.	Understand that structures have different sources.
What Simple Machine is This?	Students must identify which simple machine is shown in a given picture.	Understand that simple machines make work easier. Understand the six simple machines and their common uses.
What Simple Machine is This? II	Students must identify which simple machine is described in a given description.	
What Simple Machine is Being Used?	Students must identify which simple machine is being used in a picture of a real-world scenario.	
The Inclined Plane	Students are walked through an experiment which shows how an inclined plane makes work easier.	
Unit Test	Various questions on buildings and machines.	Understand the basic principles of buildings and machines.

3 - Changing Matter

ACTIVITY NAME	INSTRUCTION	REQUIRED SKILLS
What State of Matter is This?	Students must identify which state of matter is shown in a given photo.	Understand which states of matter common substances are in.
What State of Matter is This? II	Students must identify which state of matter is described in a given phrase.	
Clues to the States	Students must describe which state (or states) of matter are described in a given clue.	
Important Words	Students must click on the correct definition of the word they see.	Understand the basic words used to describe states of matter and their changes.
From This to That	Students must identify which change of state takes place when one printed substance turns into another.	Understand the changes of state - melting, evaporating, freezing, condensing. Predict a change of state from given environmental circumstances.
Predict the Change	Students must predict which change of state will occur to a given substance if an environmental change takes place.	
What Change is This?	Students must identify which change of state a given sentence describes.	
Changing Water	Students must click on a series of pictures of water in various states in order from coldest to hottest.	Understand and predict the changes of state for water.
Water Changes	Students must predict what will happen to a given sample of water for a described environmental change.	
Melt or Burn?	Students must predict whether a given substance will melt or burn if heated.	Understand that different substances will react differently to heat.
Dissolving	Students are walked through an experiment which shows how some substances will dissolve in water and others will not.	Understand the concept of dissolving. Understand that some substances will dissolve in water and some will not
Unit Test	Various questions on changing matter.	Understand the basic principles of changing matter.

4 - Energy

ACTIVITY NAME	INSTRUCTION	REQUIRED SKILLS
Energy and People	Students must identify which kind of energy is being produced by people in various real-world circumstances.	Understand the different forms of energy - motion, light, sound, electrical, chemical, heat.
What Form of Energy?	Students must identify which kind of energy is produced in a described real-world circumstance.	
Where Does it Get Energy?	Students must match entries in a column of energy users to entries in a column of energy sources.	Understand that different things depend on different sources of energy.
Energy Basics - True or False?	Various true or false questions on energy.	Understand the basic principles of energy.
The Sources of Energy	From a series of pictures, students must click on the sources of energy and then click on the things that are not sources of energy.	Understand the sources of energy.
Does it Use Electricity?	From a series of pictures, students must click on the things that use electricity and then on the things that do not use electricity.	Understand that different things depend on different sources of energy.
Follow the Energy	Students are walked through an experiment which shows how energy from the Sun is converted and used by plants, animals and people.	Understand how energy can be converted and used in different ways.
Build the Energy Chain	From a mixed-up list, students must click on events in their correct order. Each energy chain shows a source of energy and the use and conversion of energy.	
Renewable or Not Renewable?	From a series of pictures, students must click on the sources of energy that are renewable and then on the sources of energy that are not renewable.	Understand the environmental impact of energy sources.
Energy and the Environment	Students must answer various questions on which sources of energy are more environmentally friendly and why.	Understand the concepts of pollution and renewable energy.
Unit Test	Various questions on energy.	Understand the basic principles of energy.

5 - Motion

ACTIVITY NAME	INSTRUCTION	REQUIRED SKILLS
Is It in Motion?	From a given picture, students must decide if the object is in motion or not.	Understand the concept of motion.
What Kind of Motion? I	From a given animation, students must decide what kind of motion they see.	Understand the basic kinds of motion - straight, zig-zag, back and forth, round and round, fast, slow.
What Kind of Motion? II	From a given description, students must decide what kind of motion is described.	
Which is Moving Faster?	From two pictures, students must decide which real-world object is moving faster.	Compare the speeds of real-world objects.
Which is Moving Faster? II	From a given description, students must decide which real-world object is moving faster.	
Push or Pull?	From a given real-world scenario, students must decide whether a push or pull is being used.	Understand the difference between push and pull forces.
A Park Full of Motion	Students must click on all of the pushes and pulls in a picture of a park full of activity.	
Harder or Softer?	From a given picture of a field, students must determine whether a harder or softer kick will be needed to get the ball various places.	Understand that the force of a push or pull determines how far the object will move.
Move the Skateboard	From a given picture of some kids and a skateboard, students must determine whether a hard or soft push or pull will be needed to move the skateboard to various places.	
Ground Balls	Students are walked through an experiment where a ball is rolled over various surfaces and travels various different lengths.	Understand the concept of friction and how a surface impacts motion.
Gravity at Work	Students must identify how gravity is at work in a given real-world scenario.	Understand the basic concept of gravity.
Changing Motion	Students must answer various questions about how the motion of a ball is changed in a baseball game.	Understand that motion can be changed or stopped by another force.
Motion Basics - True or False?	Various true or false questions on motion.	Understand the basic principles of motion.
Unit Test	Various questions on motion.	

6 - Heat

ACTIVITY NAME	INSTRUCTION	REQUIRED SKILLS
Heat Basics - True or False?	Various true or false questions on heat.	Understand the basic principles of heat.
Order the Temperatures	Students must click on three real-world objects in order from the coldest to the hottest.	Understand the relative temperatures of real-world objects.
Sources of Hot and Cold	From a given series of pictures, students must click on the sources of heat and cold.	Identify the real-world objects that can make things hot or cold.
Natural or Man-Made?	Students must identify whether a given source of hot or cold is natural or man-made.	
How Did the Heat Move?	From a given real-world scenario, students must identify how heat moved.	Understand the principles of heat transfers and that heat can move through solids, liquids and air.
Heat on the Move	From a mixed-up list, students must click on the events in order of heat moving from one place to another.	
Measure the Temperature	Students must enter the temperature from the thermometer that they see.	Read a thermometer.
Pick the Thermometer	From three thermometers, students must pick the thermometer which matches a given activity.	
Getting Colder and Getting Hotter	Students must read a thermometer, then determine if it will get warmer or colder out if a given environmental change happens. Students will then read a thermometer to see if their prediction came true.	Relate temperatures to real-world experiences.
Unit Test	Various questions on heat.	Understand the basic principles of heat.

7 - Light

ACTIVITY NAME	INSTRUCTION	REQUIRED SKILLS
Sources of Light	From a series of pictures, students must click on the natural and man-made sources of light and then on the things that are not sources of light.	Identify man-made and natural sources of light.
Light Basics - True or False?	Various true or false questions on light.	Understand the basic principles of light.
Light Words	Students must click on the correct definition of the word they see.	Understand the basic words used to describe light and its actions.
Which is Brighter?	From two pictures, students must identify which source of light is brighter.	Compare the strengths of different sources of light.
A Room Full of Light	Students must compare the strengths of several sources of light in a common living room.	
Does Light Travel in a Straight Line?	Students are walked through an experiment which shows how light travels in a straight line through several pieces of cardboard with holes cut out from them.	Understand that light travels in a straight line.
Will Light Pass Through It?	Students must identify if light will pass through a given object.	Understand that light passes through certain objects and not through others.
What Will Be Lit Up?	From an overhead view of a room with a flashlight shining in a certain direction, students must identify which object will be lit up.	Understand that light reflects off of certain objects.
Fabric and Light	Students must identify what will happen when light hits a given piece of fabric.	
Unit Test	Various questions on light.	Understand the basic principles of light.

8 - Sound

ACTIVITY NAME	INSTRUCTION	REQUIRED SKILLS
A Street Full of Sound	From a given picture of a busy street scene, students must click on the source of a given sound.	Identify sources of common sounds.
What is Sound?	Students are walked through an experiment which shows how sound is a vibrating wave and how these waves travel.	Understand the basic principles of sound.
Sound Basics - True or False?	Various true or false questions on sound.	
Simple Guitar	Students are walked through an experiment which shows how to build a simple guitar with elastic bands. Students learn how different bands produce different sounds.	Understand how pitch can be affected by thickness or length of strings or size of drum.
Rock and Roll	Students are walked through an experiment where they play different notes on an electric guitar. They learn how different lengths of strings produce different sounds.	
Instruments and Pitch	Students must identify which drum or instrument will produce a higher pitch.	
Tin Can Telephone	Students are walked through an experiment where they watch a tin can telephone being built. They have to answer various questions about why the phones work.	Understand how sound can travel along a string.
Sound Waves	Students must compare two sound waves based on what they would sound like.	Understand the relationship between what a sound wave looks like and the sound it produces.
Changing Sounds	Students must identify how a given change to the form of a sound wave will affect the sound produced.	
Unit Test	Various questions on sound.	Understand the basic principles of sound.

9 - Magnets

ACTIVITY NAME	INSTRUCTION	REQUIRED SKILLS
Magnet Words	Students must click on the correct definition of the word they see.	Understand the basic words used to describe magnets.
Is it Magnetic?	Students must identify whether the object they see is magnetic or not.	Understand which materials are magnetic and which are not.
Find the Magnets	From a series of pictures, students must identify the objects that are magnetic and then the objects that are not magnetic.	
Magnet Basics - True or False?	Various true or false questions on magnets.	Understand the basic principles of magnets.
Pushing and Pulling Poles	From a given picture of two magnets, students must identify whether the magnets will be attracted to or repulsed from each other	Understand that principle and effects of polarity.
Magnets and Distance	Students are walked through an experiment which shows how magnetic force is stronger the closer two magnets get to each other.	Understand the relationship between magnetic force and distance.
The Strongest Magnet	Students are walked through an experiment which compares the strengths of various magnets.	Understand that some magnets are stronger than others.
Magnet Stoppers	Students are walked through an experiment in which two magnets are used with different materials in between. They learn that magnets can work through certain materials.	Understand that magnets can work through certain materials.
The Mysterious Floating Magnet	Students are walked through an experiment in which a magnet is used to make another magnet levitate off the ground.	Understand the potential uses of magnets.
How People Use Magnets	Students must answer questions on the various uses people have for magnets.	Understand some common uses of magnets.
Unit Test	Various questions on magnets.	Understand the basic principles of magnets.