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Introducing Science Tools

This lesson will introduce students to the tools they will be using in the STEM lab.

Select the tools (measuring weight, volume, dimensions, temperature; magnifying and observing; etc.) that you will be using with your students this year.

The goal of the lesson: introduce students to the science name for each tool, how scientists use the tool, and a chance to practice using the tool.

You will need:

- Student notebooks
- Station name signs
- Station worksheets
- Tools set up at stations 5-10, depending on grade

At the start of the lesson:
Show some pictures or video clips of scientists at work. What do the students notice about the scientists? (They are using tools to do their work!) In the STEM lab, the students are scientists and engineers, and they need to know how to use their tools safely and correctly.

At each station:
Student should draw and label the tool (have a sign at the station)
Follow the directions and fill in their answers on worksheet

Use a signal to have students move to next station.

For older grades, an alternative is to have one of each tool at each table group, and provide prompts in which students have to decide what is the correct tool to get the right measurement. Worksheet has problems to be solved: John wants to know how much warmer the water in Cup A is compared with the water in Cup B. What tool should he use? What is the temperature of the water in Cup A? Cup B?

Examples of stations:
Balance Scale
Use the balance scale to weigh the following items. Write down the weight in grams.

Block	Rock
Paper clip	Eraser
Coin	

Goggles & Gloves
Why does a scientist sometimes wear gloves?
Why does a scientist sometimes wear goggle?

Graduated Cylinder
Use a dropper to add water to reach the line for
20 ml
50 ml
Transfer water from the measuring cup into the cylinder using a funnel. Carefully!
Add a measurement of (salt or sugar) into cylinder. Swirl gently. What happens?

Forceps/tweezers
Use the forceps to pick up each of these items. Which was easiest? Why? Which was hardest? Why?
Coin
Paper clip
Leaf
Pencil
Cotton Ball

Magnifying lens
Use the lens to closely observe three items. What do you see:
Leaf
Rock
Pencil
Picture

Dimension Measurement:
Supply a variety of measuring tools (measuring tape, ruler)
To measure around the basketball, which tool is best?
To measure the length of the book, which tool?

Temperature
What is the temperature of the water in the cup with no ice?
What is the temperature of the water in the cup with ice?

Other possible tools:
Spring Scale
Microscope

After students have finished visiting each station/using each tool:
Discuss and have students reflect on the science tools they used

STEM Lab Tools

Tool name & Sketch	How is this tool useful for scientists?