🔬 Lesson Plan: Hands-on Lab Skills/Science Inquiry

Grade Level: 3
Subject: Science
Duration: 45–60 min
3-5-ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

🎯 Learning Objectives

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

- **Identify** scientific tools such as thermometers, balances, and graduated cylinders
- **Define** the steps of the scientific method, including hypothesis, investigation, and interpretation

💼 Materials Needed: (all links are included in this PDF)

- Study Guide (https://newpathworksheets.com/api/guide/study-guide-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade.pdf)
- Assessment Worksheet (Worksheet 0) (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-0.pdf)
- Scientific Method Worksheet (Worksheet 1) (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-1.pdf)

- Tools & Safety Worksheet (Worksheet 2) (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-2.pdf)
- Observation Worksheet (O-W-L) (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-o-w-l-3.pdf)
- Vocabulary Set 1 (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-1.pdf)
- Vocabulary Set 2 (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-2.pdf)

Lesson Procedure

Step 1: Introduction (5 minutes)

- Complete Vocabulary Set 1 together to match tools like 'graduated cylinder' and 'balance' to their definitions. (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-1.pdf)
- Work through Worksheet 2 as a class to identify the correct tools for measuring mass, volume, and temperature. (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-2.pdf)

Step 4: Independent Practice (15 minutes)

- Students complete Worksheet 1, answering questions about the steps of the scientific method. (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-1.pdf)
- Students use the Vocabulary Set 2 worksheet to match terms like 'Senses' and 'Interpret'. (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-2.pdf)

Step 5: Assessment (5 minutes)

- Administer Worksheet 0 as a quiz to check understanding of senses, classification, and estimation. (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-0.pdf)
- Review key safety rules one last time: 'What do we always wear during experiments?' (Goggles).

- Conduct a simple volume measurement activity using water and graduated cylinders.

Complete List of Available Resources:

- NewPathWorksheets: Hands-on Lab Skills/Science Inquiry - 3rd grade (https://newpathworksheets.com/science/grade-3/hands-on-lab-skills-science-inquiry-3rd-grade)

- Study Guide PDF (https://newpathworksheets.com/api/guide/study-guide-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade.pdf)
- Worksheet 0 PDF (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-0.pdf)
- Worksheet 1 PDF (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-1.pdf)
- Worksheet 2 PDF (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-2.pdf)
- Worksheet O-W-L 3 PDF (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-o-w-l-3.pdf)
- Vocabulary 1 PDF (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-1.pdf)
- Vocabulary 2 PDF (https://newpathworksheets.com/api/vocabulary/vocabulary-science-grade-3-hands-on-lab-skills-science-inquiry-3rd-grade-2.pdf)

PREVIEW

Please Sign In or Sign Up to download the printable version of this worksheet

HANDS-ON LAB SKILLS/SCIENCE INQUIRY

Science Process Skills

Scientists use many science process skills when they are working and experiencing science. Most of these skills you will use, too, when you are conducting science experiments and when you are investigating things in our world.

Observing

Science is all about observations. You can use your **senses** to observe, study, and examine the environment around you. Your senses include seeing, smelling, hearing, tasting, and touching.

Classifying

Making Inferences

You often make inferences in Language Arts, but you can make **inferences** in Science too. An **inference** is when you say what you *think* is going to happen, based on the facts and information that you already know.

Models

Scientists often create models or diagrams of different things they are studying.

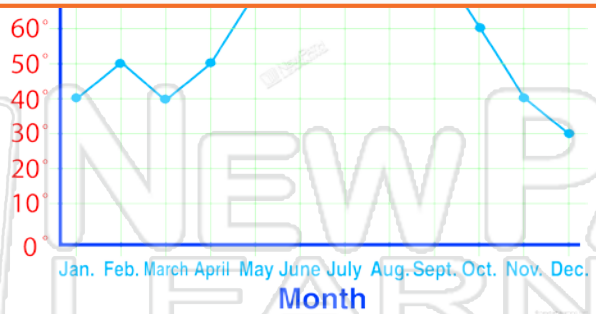
Investigating

Scientists examine many different things in order to gather information and learn new things about what they are studying. **Investigate** means to study something closely.

Collecting Data

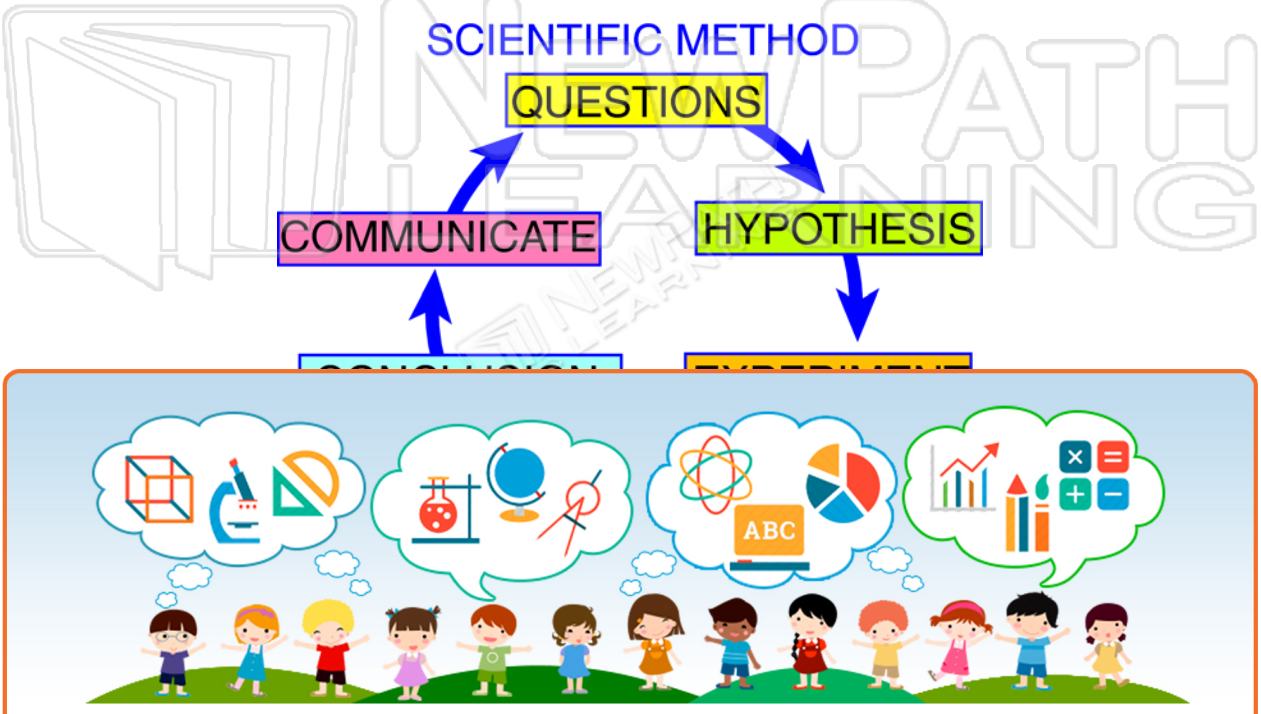
Data is another word for facts and information. Scientists collect facts and information in order to answer the questions they have during investigations.

Color	# of birds
blue	𝍸 𝍸 ||||



Scientific Method

The Scientific method is a set of steps used by scientists as a way to ask and answer scientific questions during observations and experiments. Scientists often use these scientific method steps to study cause and effect relationships, which means they study things that may cause something or be affected by something else.



changes to, which you can use to compare the other parts of your experiment.

Fourth Step: Conduct an Experiment

Test your hypothesis by conducting an experiment.

Fifth Step: Gather and Record Your Data

Collect and record the facts and information you find out during and at the end of your experiment.

Sixth Step: Decide Your Final Answer

After conducting your experiment and collecting your data, you need to **interpret** your data and results. You can organize your information by making charts or graphs so that the information is easy to read and understand.

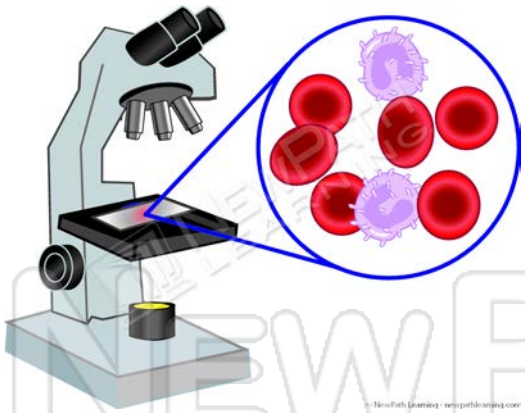
Last Step: State Your Final Answer

After interpreting your results, the final step to the **scientific method** is to state your conclusion and to communicate your results. You need to ask: Was your hypothesis correct? Did the results of your experiment support your hypothesis?

An important step to using the **scientific method** is to ALWAYS show evidence of your conclusions and statements you make after an experiment.

Tools Used to See:

- Telescopes – used to see things very, VERY far away, like stars
- Hand lens/magnifying lens – used to enlarge an object or item
- Binoculars – used to make objects far away seem larger
- Microscopes – used to make tiny things appear much larger than they are



Tools Used to Measure:

- Thermometer – used to measure temperature
- Balance – used to measure mass
- Rulers/meter sticks – used to measure length
- Graduated cylinder – used to measure volume
- Stopwatch – used to measure time

A Tool Used for a Heat Source:

- Hot plate – used to create heat

Tools Used for Calculating and Recording:

- Calculator - - used for figuring out different number amounts
- Computer – used for recording, collecting, and organizing information

Safety in Science

Here are some important safety rules to follow while experiencing Science:

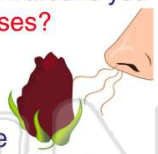
- ☑ You should always listen to and read ALL directions very carefully before conducting any experiment.
- ☑ ALWAYS wear your goggles while conducting an experiment.
- ☑ NEVER taste any materials or substances involved with any experiments.
- ☑ Handle all equipment used for experiments carefully.
- ☑ Clean up all spills quickly.

Hands-on Lab Skills/Science Inquiry - 3rd grade

Sci C

Name_____ Class_____ Date_____

1 As a scientist you can use your **senses** to observe the environment around you What are **all** of your senses?



A sight, smell, taste, touch, and hearing
B sight, smell, and taste
C smell, taste, touch, and sound
D taste, touch, and hearing

2 In Science, you often need to **group objects** in certain groups. _____ means to group things together which have **similar properties** or features.

A Identify **C** Classify
B Observe **D** List

3 When you _____, you think of a number that you think is **close to an actual number** based on the background information you know.

A estimate

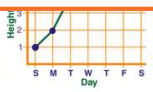
4 Scientists often make **predictions**, which means that they tell what they think will happen before it happens. A **prediction** is often known as a _____ in science.

5

7

A Estimate **C** Investigate
B Classify **D** Grouping

C confusing papers
D their own handwriting



9 _____ is another word for **facts and information**. Scientists collect facts and information in order to answer the questions they have during investigations.

A Charts **C** Groups
B Maps **D** Data

10 Scientists often **interpret** the information they collect and observe. What does **interpret** mean?

A to explain the meaning of something
B to sort into groups
C to draw
D to conduct an experiment

Hands-on Lab Skills/Science Inquiry - 3rd grade

Sci C

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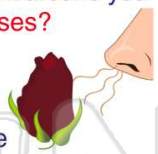

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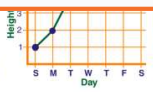

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A Charts **C** Groups
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Hands-on Lab Skills/Science Inquiry - 3rd grade

Sci C

Name_____ Class_____ Date_____

1 The _____ is a way to **ask and answer** through observations and by conducting experiments.

A scientific book
B scientific reason
C scientific method
D scientific group

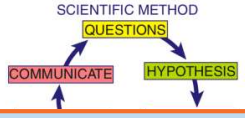
2 Scientists often use the **scientific method** to study _____ relationships, which means they study things that may affect or be affected by something else.

A unimportant **C** small
B easy **D** cause and effect

3 What is the first step of the **scientific method**?

A to collect materials
B to ask a question
C to conduct an experiment

4 The second step of the **scientific method** is to state your _____.



A hypothesis
B concerns
C question

5

7

C make up
D switch

B conclusion **D** name

9 An important step in the **scientific method** is to _____ show evidence of your conclusions and statements you make after an experiment.

A sometimes **C** never
B always **D** in no way

10 After conducting an experiment, you can use the information you learned and the experience gained to help you conduct even **better** _____.

A teacher's experiments
B experiments done by others
C past experiments
D future experiments

Hands-on Lab Skills/Science Inquiry - 3rd grade

Sci C

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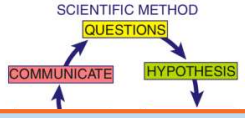

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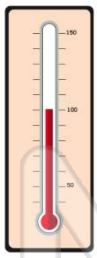
Hands-on Lab Skills/Science Inquiry - 3rd grade

Sci C

Name_____ Class_____ Date_____

1 What do scientists use to measure **temperature**?



A balances
B scales
C thermometers
D graduated cylinders

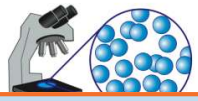
2 Scientists use _____ to **observe** things that are very far away from us, such as the stars.

A telescopes
B microscopes
C magnifying glasses
D looking glasses

3 If you wanted to measure the **mass** of an object, which of the following science tools would you use?

A a measuring cup
B a balance

4 _____ are used by scientists to **make small things appear big** so that they are easier to observe and study.



A Calculators
B Microscopes

5

7

C pick a partner
D go outside

C sometimes
D never

9 If something **spills** during your experiment, what should you do?

A just change seats
B leave the spill alone
C clean up the spill right away
D clean up the spill later

10 What is very important to do **after** you conduct an experiment?

A take out your materials
B wash your hands very well
C talk to your friends
D go outside

Hands-on Lab Skills/Science Inquiry - 3rd grade

Sci C

Name_____ Class_____ Date_____

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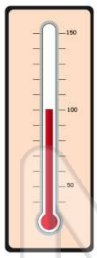

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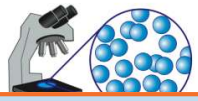

A Calculators
B Microscopes

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5

B

7

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A take out your materials
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C talk to your friends
D go outside

B

O-W-L

Sci C

Name _____ Class _____ Date _____

Purpose

Observe	Wonder	Learn

PREVIEW

Please Sign In or Sign Up to download the printable version of this worksheet

Name _____ Class _____ Date _____

Primary Examples

Rock Sample 1

Observe	Wonder	Learn
• shades of gray • breaks apart easily • smells like dirt	• Is it sedimentary? • Where was it found? • What does it look like under a microscope?	• It has layers. • It is #3 on Mohs Hardness Scale. • Leaves a gray streak.

In

• t… time • stretches & contracts as it moves • wide band in the center of the worm's body • lots of lines around the body • feels bristly	• Do the lines help the worm move? • What happens when worms are placed on dark and light paper?	• Worms move to the dark paper every time.

Hands-on Lab Skills/Science Inquiry - 3rd grade

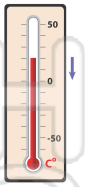
Sci C

Name_____ Class_____ Date_____

Match each of the following terms to its definition:

Balance	Graduated cylinder	Thermometer	Inference
Goggles	Data	Interpret	Investigate

1. - a tool that measures temperature



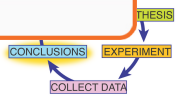
2. - a tool used to measure the weight of an object

3. experi

4. observ

5. of liqu

6. quanti knowledge or evidence



7. - to explain the meaning of something

8. - to study something closely

Hands-on Lab Skills/Science Inquiry - 3rd grade

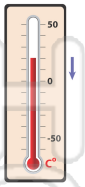
Sci C

Name_____ Class_____ Date_____

Match each of the following terms to its definition:

Balance	Graduated cylinder	Thermometer	Inference
Goggles	Data	Interpret	Investigate

1. thermometer - a tool that measures temperature



2. balance - a tool used to measure the weight of an object

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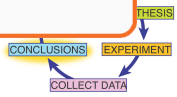


7. interpret - to explain the meaning of something

8. investigate - to study something closely

Hands-on Lab Skills/Science Inquiry - 3rd grade

Sci C

Name_____ Class_____ Date_____

Match each of the following terms to its definition:

Thermometer	Scientific method	Balance	Microscope
Interpret	Predict	Investigate	Senses

1. - to explain the meaning of something

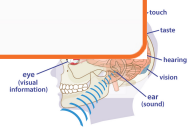
2. - to study something closely

3. appea
that m

4.

5.

6.



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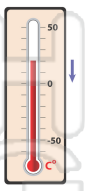
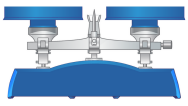


8. - a tool used to measure the weight of an object



Hands-on Lab Skills/Science Inquiry - 3rd grade

Sci C

Name_____ Class_____ Date_____

Match each of the following terms to its definition:

Thermometer	Scientific method	Balance	Microscope
Interpret	Predict	Investigate	Senses

1. interpret - to explain the meaning of something

2. investigate - to study something closely

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4. pre

5. sci

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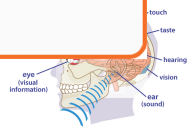

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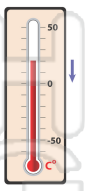

8. balance - a tool used to measure the weight of an object