📊 Lesson Plan: Math in Science

Grade Level: 4
Subject: Science
Duration: 45-60
4.MD.A.2: Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems that require expressing measurements given in a larger unit in terms of a smaller unit.

🎯 Learning Objectives

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

- **Identify** the ways mathematics is used to organize and analyze scientific data
- **Calculate** measurements, temperature differences, and elapsed time in scientific scenarios

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

- Math in Science Study Guide (https://newpathworksheets.com/api/guide/study-guide-science-grade-4-math-in-science-4th-grade.pdf)
- Math in Science Practice Worksheet 1 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-math-in-science-4th-grade-0.pdf)

- Math in Science Practice Worksheet 2 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-math-in-science-4th-grade-1.pdf)
- Math in Science Practice Worksheet 3 (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-math-in-science-4th-grade-2.pdf)

Lesson Procedure

Step 1: Introduction (5 minutes)

- Ask students: "How do you think scientists use math when they conduct experiments and make observations?"
- Discuss how observing nature requires measuring, calculating, and tracking changes to prove hypotheses.

- Have students practice reading the decibel chart and comparing temperatures together.

Step 4: Independent Practice (15 minutes)

- Have students complete the second practice worksheet independently. (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-math-in-science-4th-grade-1.pdf)
- Circulate the room to help students who may struggle with calculating differences in elapsed time or identifying graph patterns.

Step 5: Assessment (10 minutes)

- Use the third practice worksheet as an assessment to check students' understanding of applying math to science scenarios. (https://newpathworksheets.com/api/worksheet/worksheet-science-grade-4-math-in-science-4th-grade-2.pdf)
- Review the answers to ensure students correctly calculated animal distances, plant growth, and lifespan differences.

Differentiation Strategies

For advanced learners:

- Provide students with raw data from a simple scientific experiment and ask them to create their own bar graph or line graph.
- Challenge students to calculate the mean, median, and mode for a set of science-related measurements.

Complete List of Available Resources:

- NewPathWorksheets: Math in Science (https://newpathworksheets.com/science/grade-4/math-in-science-4th-grade)
- Math in Science Study Guide (https://newpathworksheets.com/api/guide/study-guide-science-grade-4-math-in-science-4th-grade.pdf)
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MATH IN SCIENCE

Using Math in Science

Whenever you are conducting a science experiment or investigation, in Science, Math will most always be involved. Whether you are measuring, calculating, creating graphs and charts, or using numbers in any way…that's using your math skills.

Where Do You Use Math in a Science Investigation?

When you are measuring:

- During many science investigations you may have to measure the **length, width, height, or weight** of different objects.
- You may need to compare measurements of different objects, use such

one month.

Weekly NEW Growth in Plant Height of Plants Measured Weekly

	week 1	week 2	week 3	week 4
Plant A	2 cm	4 cm	5 cm	7 cm

To solve this problem, you would add 2 cm + 4 cm + 5 cm + 7 cm = 18 cm

SUBTRACTING...

You many need to find out a difference in temperature.
At Sherman Elementary School it was 26° C at 11:00 AM in the morning but dropped down to 20° C by 2:00 PM in the afternoon. How much did the temperature **decrease** from 11:00 AM to 2:00 PM?

Temperature Outside			
8:00 a.m.	10:00 a.m.	12:00 p.m.	2:00 p.m.
20°C	23°C	29°C	31°C

To solve this problem, you would subtract 26° C - 20° C = 6° C

Creating graphs and charts during your science investigations involves Math too! Graphs and charts help organize your information so that you can clearly show your data results which will help you justify your hypothesis!

Math in Science

Sci D

Name_____ Class_____ Date_____

1 A scientist named **Anton van Leeuwenhoek** was the first to observe cork cells under a microscope in **1675**. If it is now the year **2008**, Leeuwenhoek observed these cork cells over _____ years ago.

A 300
B 400
C 500
D 600

2 If a tree grows **64 cm each year**, how tall will it be in **7 years**?

A 48 cm
B 424 cm
C 328 cm
D 448 cm

3 How many centimeters is **plant A** growing **each week**?

A 4 cm
B 2 cm
C 28 cm

Height of Plants

	Week 1	Week 2	Week 3	Week 4
Plant A	4 cm	6 cm	8 cm	10 cm

4 How many **more** centimeters did plant B grow than plant A during week 4?

A 2 cm
B 10 cm
C 1 cm

Height of Plants

	Week 1	Week 2	Week 3	Week 4
Plant A	4 cm	6 cm	8 cm	10 cm

5

7

C tapeworm C
D all grew same length

B 33°C
C 43°C
D 37°C

9 Which animal travels the **farthest** to migrate each year?

A Animal A
B Animal B
C Animal C
D Animal D

Average Distance Traveled to Migrate

Animal A	800 km
Animal B	3200 km
Animal C	1200 km
Animal D	1600 km

10 Morgan needs to take 1,300 mg of calcium a day. Looking at the chart below, we can see that if she ate 1 bowl of oatmeal, 1 orange, and 2 glasses of milk, she would get **exactly enough** calcium for the day.

True or false?

A true
B false

Food Product	Amount of Calcium
1 glass of milk	300 mg
1 orange	50 mg
1 cup of yogurt	300 mg
1 cup of oatmeal	100 mg

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Math in Science

Sci D

Name_____ Class_____ Date_____

1 Amy's heart beats on average **70 times per minute**. How many times will her heart beat in **30 minutes**?

A 2,100 minutes
B 2,001 minutes
C 210 minutes
D 1,200 minutes

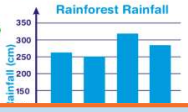
2 Two scientists found three different fossils at three different times. One fossil was found in 1942, one was found in 1953, and the third fossil was found in 1956. Which fossil is the **oldest**?

A the one found in 1942
B the one found in 1953
C the one found in 1956
D cannot know from information given

3 In the desert the temperature during the day was 43°C and at night the temperature dropped to 18°C. How much did the temperature **decrease** from day to night?

A 2°C

4 Harry made a bar graph showing the amount of rainfall that fell in the rainforest in Brazil. Which two months had the **most rainfall** during the months of January–April?



A January and February

7

B 32,500 years
C 32,000 years
D 35,200 years

C increases by 0.1
D decreases by 0.1

1987	7.9
1986	8.0

9 Justin placed an ice cube on his desk at 1:15 p.m. By 1:47 p.m. the ice cube had melted completely. **How many minutes** did it take for the ice cube to melt?

A 23 minutes
B 32 minutes
C 42 minutes
D 33 minutes

10 Three quarters of earth is covered by water. What **percentage** of the earth is then covered by water?

A 25%
B 50%
C 75%
D 10%

Math in Science

Sci D

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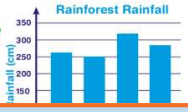

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Sci D

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1 Ninety-seven percent of the water on earth is saltwater, and the **rest** is freshwater. What percentage of the earth's water is **freshwater**?

A 97%
B 13%
C 23%
D 3%

2 Earth experiences different hours of daylight throughout the year. Which season has the **longest hours** of daylight?

A winter
B spring
C summer
D fall

3 Planet Earth's average distance from the Sun is 149,600,000 km while Venus' average distance from the Sun is 108,200,000 km. How many **more kilometers** is Earth from the Sun than Venus?

A 41,400,000 km

4 The earth takes **24 hours** to complete one rotation. How many times does the earth rotate completely in **one week**?

A 4 times
B 5 times

5

7

C 19 km/hr
D 100 km/hr

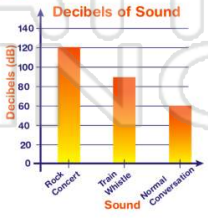
D 3.0 seconds

9 Let's say a wind turbine can generate **225 kilowatts** of electrical power. How many kilowatts could **three** of these wind turbines generate **all together**?

A 675 kilowatts
B 450 kilowatts
C 700 kilowatts
D 625 kilowatts

10 Which of those listed on the bar graph is the **loudest** sound to hear?

A rock concert
B jet plane
C train whistle
D normal conversation



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PREVIEW

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

7

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D 100 km/hr

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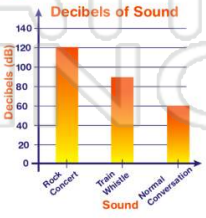

A