Science Sub Plans Week, Middle School

Week-long sub plans: five days of print and go work for grades 6 to 8, planned Monday to Friday.

PREVIEW

What is included

- Sub binder: notes, the filled-in week plan, a blank schedule, class list, Monday opener (11 pages)
- Science sets for five days (15 pages)
- Calm puzzles and reset sheets (10 pages)
- Science team tasks (11 pages)
- Science games (10 pages)
- Answer keys (10 pages)

How it works

1. Open the week plan. Every set already has its day and page number.
2. Each day: one science set per period (a lesson with worked examples, practice and a challenge), a calm puzzle, a team task and a game for the last 15 minutes.
3. The sub needs no subject knowledge. Every answer is in the key.
4. Print in color or ink-saver black and white, US Letter or A4.

What this preview shows: the filled-in week plan, the note to the substitute, the Monday opener, and all of Day 1 (the science set, the calm block, the team task and the game), one answer-key page and one ink-saver page. Every product page is watermarked. The full kit has 68 pages.







This Week's Plan

Filled in for you: run the day's set in every period you teach. Keep it as it is, or use the blank schedule on the next page for your own order.

WHEN	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Start of class	**Meet Your Sub** p. 10 · 15 min, every period	Attendance, voice level	Attendance, voice level	Attendance, voice level	Attendance, voice level
Main work, every period	**Science 1** Density: Why Things Float p. 13	**Science 2** States of Matter p. 22	**Science 3** Food Chains and Webs p. 31	**Science 4** Forces and Motion p. 41	**Science 5** The Water Cycle p. 50
Early finishers or a loud moment	**Word Search and Reset Sheet** p. 16	**Sudoku and Grounding Sheet** p. 25	**Secret Codes and Control Sheet** p. 34	**Maze and Brain Dump** p. 44	**Word Ladders and Three Good Things** p. 53
Block period or extra time	**The Size Scale Hallway** p. 18	**The Lab Week Plan** p. 27	**Paper Helicopter Test** p. 36	**Trout Stream Council** p. 46	**The Mars Crew Debate** p. 55
Last 15 minutes, if earned	**Whiteboard Jeopardy** p. 20	**Paper Password** p. 29	**Class Feud** p. 39	**Classroom Millionaire** p. 48	**Mystery Box** p. 57

How to use this plan

- Page numbers point to the first page of each set. Copy one per student.
- The calm block is always allowed: a period that runs short, a loud class, or anyone who finishes early.
- The game is the reward. Skip it on a day the class has not earned it.

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Note to the Substitute

Grades 6 to 8 · five days · every set runs from the printout alone

Thank you for covering my classes this week

Everything you need is in this binder. The front pages (important information, weekly schedule, class list) are filled in for this week. After them come the work sets, one per day: **Science 1** is Monday's set, **Science 2** is Tuesday's, and so on to **Science 5** on Friday. Run the day's set in every period you teach that day. Each set is one period (45 to 55 minutes), stands alone, and has its own answer key at the back of the binder, so you never have to make anything up or know the subject. The first page of every set tells you what to say. Every set ends with a challenge, so it stretches to a 90-minute block when you need it.

After the subject sets come the shared blocks, one of each per day. The **calm block** is always allowed: for a period that runs short, a loud class, or anyone who finishes early. The **team task** fills a period on its own. The **game** is the reward slot: fifteen minutes, from the script, when a class has earned it.

Each day has

- One Science set (one period, with a challenge to stretch it)
- A calm and quiet block: a puzzle page and a reset sheet
- A team task for groups of four
- A paper game from the script

If the class is loud

- Set a voice level with a number, 0 to 3, and use it all week (the Day 1 opener explains it).
- Switch to the calm block. Nobody needs to move.
- Every set has a challenge at the end, so fast finishers always have something.
- If a set is not working, stop it and use the calm block or the team task. Every set starts cold.

At the end of each day

Please fill in that day's line on the "How it went" page. It takes two minutes and I read every word.

Did this kit work well for your class? A quick review helps other teachers find it and earns you TpT credits. Thank you!

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Meet Your Sub

Day 1 opener, 15 minutes at the start of every period on Monday, before the set. Nothing to prepare.

Opener

Sub script (same routine for every class)

1. **Before first period, fill in the introduction sheet** (next page) once. Keep it honest and short. Students read a sub in ten seconds; give them something real to read.
2. **Introduce yourself** from the sheet: two minutes. Then hold up the "Ask the Sub" list and take three questions from hands. Three, not ten.
3. **Read the class agreement** out loud. Ask the class to add one line of their own and write it on the board for that period. That line is theirs; they will keep it better than yours.
4. **Set the voice level** with a number, 0 to 3 (bottom of the sheet). Say which level the set needs. Use the numbers all week.
5. **Start the set:** "This is today's work. It has a challenge at the end, and the calm block is always allowed when you finish."

If the class is loud

- Skip the questions, keep the agreement and the voice level.
- Start the set sooner. The game at the end of the day is the reward for a level that holds.

If a period has ten minutes left

- Play Two Truths and a Lie (rules on the class page) in groups of six. Each group picks one to share.
- Or hand out the reset sheet from the calm block.

Monday morning checklist (before first period)

- [ ] Read the Important Information page: office number, emergency exits, the nurse.
- [ ] Check the class list for allergies, medical needs and students who leave early.
- [ ] Find today's set on the weekly schedule and count copies for every period.
- [ ] Fill in the About Your Sub sheet and pin it where the class can see it.
- [ ] Write the voice levels 0 to 3 on the board.
- [ ] Put the answer keys somewhere students cannot reach them.

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Science Set 1: Density, Why Things Float

Read, then work through the example. Calculator allowed if the teacher allows it; the numbers divide cleanly either way.

Science · Day 1

Pick up a brick and a loaf of bread of the same size. The brick is heavier. That difference is density: how much mass is packed into a certain amount of space. We measure it as mass divided by volume, usually in grams per cubic centimeter (g/cm³).

Density is why things float or sink. Fresh water has a density of about 1.0 g/cm³. Anything less dense than water floats in it; anything more dense sinks. Ice floats because water expands as it freezes, so the same mass takes up more space and the density drops to about 0.92 g/cm³. A steel ship floats because the ship is mostly air: the steel plus all the empty space inside has an average density lower than water.

Density does not change with size. A gold ring and a gold bar have the same density (19.3 g/cm³). Cut a block of wood in half and each half has the same density as the whole. That is why density is useful for identifying materials: a substance's density is like a fingerprint.

Worked example

A rock has a mass of 60 g and a volume of 24 cm³.

density = mass / volume = 60 / 24 = 2.5 g/cm³. Denser than water (1.0), so it sinks.

Try it

A candle has a mass of 45 g and a volume of 50 cm³. Its density is _____

Will it float or sink in water? _____

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Science Set 1: The Data Table

Complete the density column (mass divided by volume, to two decimal places). Then predict: float or sink in water?

Science · Day 1

MATERIAL	MASS (G)	VOLUME (CM³)	DENSITY (G/CM³)	FLOAT OR SINK?
Cork	24	100		
Pine wood	55	100		
Ice	46	50		
Plastic bottle cap	9	10		
Solid rubber ball	66	60		
Aluminum	54	20		
Iron	158	20		
Gold	96.5	5		

Questions

1. **Which two materials in the table are closest in density? Give the two densities.**

2. **A block of aluminum is cut into four equal pieces. What is the density of one piece?**

3. **A mystery metal has a mass of 316 g and a volume of 40 cm³. Which material in the table is it most likely to be?**

4. **Explain in one sentence why a steel ship floats even though steel sinks.**

5. **A student says that heavy things sink. Use two rows of the table to show that this is not always true.**

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Science Set 1: Challenge, the Density Tower

Science · Day 1

Use the densities to build the tower on paper: densest liquid at the bottom, least dense at the top.

In a density tower, each liquid is poured slowly, one at a time, down the inside of a tall glass. It comes to rest on top of the layers that are denser than it. Water and rubbing alcohol would mix if they touched, but the oil layer keeps them apart.

The liquids

LIQUID	DENSITY (G/CM³)
Water	1.00
Rubbing alcohol	0.87
Honey	1.42
Vegetable oil	0.92
Dish soap	1.06

Densest at the bottom, least dense at the top.

Draw the tower

Top

Bottom

Explain

A small plastic bead with a density of 1.20 g/cm³ is dropped into the tower. Between which two layers does it stop, and why?

Extra challenge

A block floats in water with exactly half of it under the surface. What is its density? Explain how you know.

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Calm Block, Day 1: Word Search

Find all 12 science words. Every direction, including backward. Pencils only, voices at 0.

Calm · Day 1

B	N	X	G	C	M	I	N	E	R	A	L	S	L
T	X	H	C	U	V	Y	H	B	C	G	X	U	U
O	X	P	L	G	Q	O	X	J	J	V	D	E	V
G	C	H	I	R	K	H	R	R	I	A	Y	L	Z
M	H	F	M	Z	J	R	O	F	Y	P	L	C	G
S	A	E	A	V	X	P	T	D	O	O	T	U	U
I	C	S	T	T	M	R	A	E	T	R	W	N	R
N	F	E	E	A	O	Q	D	N	Q	U	C	N	F
A	D	I	G	T	L	T	E	S	L	K	X	E	B
G	I	C	E	I	M	E	R	I	P	L	O	L	F
R	U	E	K	B	V	N	P	T	S	R	L	H	G
O	L	P	A	A	C	A	K	Y	C	L	V	E	R
L	Z	S	M	H	R	L	W	M	V	H	M	Z	C
O	Q	N	L	O	Z	P	K	C	L	T	Z	V	Z

ORGANISM · PREDATOR · DENSITY · HABITAT · CLIMATE · NUCLEUS · MINERAL · SPECIES · PLANET · FORCE · VAPOR · CELL

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Reset Sheet

For one person, any time. Nobody reads it but you. Start with the breathing, then the three lines.

Calm · Day 1

Box breathing

Breathe in for four counts, hold for four, out for four, hold for four. Four times.

Three things I can see from my seat

Two sounds in the room right now

One thing I did well today

Right now I feel (circle one)

1 2 3 4 5 6 7 8 9 10

1 = totally calm, 10 = about to burst. Went down by one? That is the skill.

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Team Task, Day 1: The Size Scale Hallway

Groups of four. Voice level 2. One sheet per group, one person writes, everyone must agree before a number goes down.

Team · Day 1

The situation

A science museum is building a hallway called **Smallest to Biggest**. Twelve displays hang along the wall in size order: the smallest thing by the door, the biggest at the far end. The movers hung them in a random order, and you are the science team that has to put them back.

Your job: rank the twelve things from 1 (smallest) to 12 (biggest), first alone, then as a group. Then the sub reads the museum scientist's order and you score the difference.

Timing: rank alone 7 min, agree as a group 15 min, scientist's order and scoring 8 min, last card 10 min. Group of three: one person writes. Group of five: add a checker who adds up the differences.

The scientist's rule

Compare the **typical size** of each thing, measured across its **longest side**. For a round thing, that is the distance straight across. For a person, it is height. For a hair, it is the width, since the display shows a hair cut crosswise.

Units, small to big: 1,000 nanometers = 1 micrometer; 1,000 micrometers = 1 millimeter; 10 millimeters = 1 centimeter; 100 centimeters = 1 meter; 1,000 meters = 1 kilometer.

DISPLAY	MY RANK	GROUP RANK	SCIENTIST	DIFFERENCE
A blue whale				
A red blood cell				
The Sun				
A grain of table salt				
A hydrogen atom				
The Moon				
A worker honeybee				
A flu virus				
The width of a human hair				
Planet Earth				
A seventh grader				
A bacterium (E. coli)				
Total difference (lower is better)				

Scoring: for each row, group rank minus scientist rank, dropping the minus sign; add the twelve numbers. 10 or less: excellent. 11 to 20: good. Over 20: listen closely to the sizes.

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Team Task, Day 1: The Hallway Sheet

Fill in the hallway with your group's order before the sub reads the scientist's order.

Team · Day 1

Our hallway, from the door to the far end

Write the display names in your group's order. Under each name, write your best guess of its size with a unit (for example, 2 meters).

1 size:	2 size:	3 size:
4 size:	5 size:	6 size:
7 size:	8 size:	9 size:
10 size:	11 size:	12 size:

door: smallest **far end: biggest**

Defend one choice

Pick one display your group placed far from the scientist's spot. Write two sentences: why you put it there, and what the real size taught you.

Find the big jump

When the sub reads the sizes: between which two neighbors in the hallway is the biggest jump in size? About how many times bigger is the second one?

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Game, Day 1: Whiteboard Jeopardy

Sub script and science questions. 15 minutes at the end of the day, or when the class has earned it.

Game · Day 1

Set up (2 minutes)

1. Draw a 5 by 5 grid on the board (or tape up the board sheet). Write the five category names across the top and the values 100 to 500 down each column.
2. Teams of four to six. Team 1 picks a category and a value.
3. Read the question. The team answers. Right: they win the points and pick again. Wrong: the next team may steal.
4. Cross the square off. Highest total when time is up wins.

Read this out

"This is the reward. If the noise goes above level 2, the square is dead and nobody scores it. Team 1, pick a category and a number."

Keep the score on the board. If a team argues, the script wins and the game moves on.

Cells

100 What is the basic unit of all living things?
The cell

200 Which organelle is the control center of the cell?
The nucleus

300 Which organelle is called the powerhouse of the cell?
Mitochondria

400 Where in a plant cell does photosynthesis happen?
The chloroplasts

500 What stiff outer layer do plant cells have?
The cell wall

Forces

100 What force pulls objects toward the center of Earth?
Gravity

200 What force slows a box sliding on a rough floor?
Friction

300 Forces that cancel each other out are called what?
Balanced forces

400 A bike goes 30 meters in 6 seconds. What is its speed?
5 m/s

500 What is the energy of motion called?
Kinetic energy

Ecosystems

100 What do we call an animal that eats only plants?
A herbivore

200 Organisms that make their own food are called what?
Producers

300 What do we call organisms that break down dead matter?
Decomposers

400 An animal that hunts other animals is called what?
A predator

500 What percent of energy passes to the next food level?
About 10%

Earth

100 What is the closest star to Earth?
The sun

200 About how long does Earth take to orbit the sun?
One year

300 What are the moving pieces of Earth's crust called?
Tectonic plates

400 Which type of rock forms from cooled magma or lava?
Igneous rock

500 What causes Earth's seasons?
Its tilted axis

Matter

100 What are the three common states of matter?
Solid, liquid, gas

200 At what Celsius temperature does water freeze?
0 degrees C

300 What is the change from a gas to a liquid called?
Condensation

400 What is the chemical symbol for sodium?
Na

500 Mass divided by volume gives what property?
Density

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Game, Day 1: The Board

Tape this to the whiteboard or copy it. Cross squares off as they are played.

Game · Day 1

CELLS	ECOSYSTEMS	MATTER	FORCES	EARTH
100	100	100	100	100
200	200	200	200	200
300	300	300	300	300
400	400	400	400	400
500	500	500	500	500

Scores

Team 1

Team 2

Team 3

Team 4

Team 5

Team 6

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Answer Keys (1 of 10)

Teacher copy. Keep these pages out of the student sets.

Science Set 1: Density

Try it: 45 / 50 = 0.90 g/cm³, floats. **Table:** Cork 0.24 (floats); Pine wood 0.55 (floats); Ice 0.92 (floats); Plastic bottle cap 0.90 (floats); Solid rubber ball 1.10 (sinks); Aluminum 2.70 (sinks); Iron 7.90 (sinks); Gold 19.30 (sinks).

Questions: 1. Ice (0.92) and plastic cap (0.90). 2. 2.70 g/cm³, same as the whole block. 3. 316 / 40 = 7.90, iron. 4. The ship is mostly air, so its average density is below water's. 5. The pine wood (55 g) floats, but the aluminum, with less mass (54 g), sinks; floating depends on density, not on mass.

Tower, bottom to top: Honey, Dish soap, Water, Vegetable oil, Rubbing alcohol. The bead (1.20) stops between dish soap (1.06) and honey (1.42): it sinks through every layer less dense than itself and floats on the first layer denser than itself. **Extra:** 0.5 g/cm³; the fraction under water equals the density ratio to water.

Calm block, Day 1: word search

B	N	X	G	C	M	I	N	E	R	A	L	S	L
T	X	H	C	U	V	Y	H	B	C	G	X	U	U
O	X	P	L	G	Q	O	X	J	J	V	D	E	V
G	C	H	I	R	K	H	R	R	I	A	Y	L	Z
M	H	F	M	Z	J	R	O	F	Y	P	L	C	G
S	A	E	A	V	X	P	T	D	O	O	T	U	U
I	C	S	T	T	M	R	A	E	T	R	W	N	R
N	F	E	E	A	O	Q	D	N	Q	U	C	N	F
A	D	I	G	T	L	T	E	S	L	K	X	E	B
G	I	C	E	I	M	E	R	I	P	L	O	L	F
R	U	E	K	B	V	N	P	T	S	R	L	H	G
O	L	P	A	A	C	A	K	Y	C	L	V	E	R
L	Z	S	M	H	R	L	W	M	V	H	M	Z	C
O	Q	N	L	O	Z	P	K	C	L	T	Z	V	Z

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Science Set 1: The Data Table

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Science · Day 1

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In the full kit

Five days, planned and ready to print.

68 pages in color and ink-saver B&W, US Letter and A4

5 days, each with its own sets, calm puzzle, team task and game

15 pages of science sets with worked examples

10 answer-key pages, every answer checked

Thank you! If this works for your class, a quick review helps other teachers find it, and earns you TpT credits.

