

# North Dakota Grade 3 to Grade 4 Physical Science Summer Bridge

*Physical Science: Review and Readiness*

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# Welcome to Physical Science

## Summer Bridge

3 → 4

A summer path from Grade 3 physical science review into Grade 4 energy readiness.

This book begins with the force and motion ideas students learned in Grade 3, then gently introduces the Grade 4 energy ideas they will see next. The early weeks protect what students already know. The later weeks preview speed, energy transfer, collisions, and simple energy-device design with clear pictures and short practice.

### Keep strong

- pushes, pulls, and motion changes
- balanced and unbalanced forces
- evidence from fair investigations
- motion patterns and predictions
- magnets and electric forces at a distance

### Get ready

- faster objects can have more energy
- sound, light, heat, and electricity can move energy
- collisions can transfer energy
- engineers design devices that change energy
- tests help improve a design

#### How the Grade 3 to Grade 4 path works

Weeks 1–5 are mostly Grade 3 review. Weeks 6–8 preview Grade 4 physical science in a gentle way. Students do not need to master every Grade 4 idea now; they only need enough background to feel familiar with the new words and examples.

# How to Use Physical Science Summer Bridge

3 → 4



## Use the page order as the readiness plan.

This book is not just a repeat of Grade 3. It starts with review so students feel steady, then introduces a few Grade 4 physical science ideas before school begins. Move one page at a time and let the new ideas feel familiar before expecting perfect answers.

- Review weeks** Use the early weeks to check forces, motion, magnets, patterns, evidence, and design problems from Grade 3.
- Readiness weeks** In later weeks, notice new Grade 4 words: energy, speed, transfer, collision, and device.
- Friday quiz** Treat the quiz as a checkup. It shows what is remembered and what should be reread before moving on.
- After checking** For missed answers, ask whether the question used a Grade 3 review idea or a Grade 4 preview idea.

### Anchor

Start with the science idea students already know from Grade 3.

### Connect

Link that idea to a new Grade 4 word, picture, or example.

### Check

Use the answer explanation to see which clue mattered most.

### For students

- Say whether the page is review or readiness.
- Use the picture before reading the choices.
- Keep short answers simple and science-based.
- Mark new Grade 4 words to revisit later.

### For adults

- Do not overteach the preview weeks.
- Ask how the new idea connects to Grade 3 science.
- Use missed answers to name one idea to reread.
- Keep the tone exploratory, not test-like.



# My Science Bridge Progress

Check off each lesson and write the Friday quiz score as you move toward Grade 4.

5 review weeks

3 readiness weeks

8 Friday quizzes

This bridge book belongs to:

Week	Focus	Mon	Tue	Wed	Thu	Friday Quiz
1	Balanced and unbalanced forces	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> / 10
2	Force evidence and motion patterns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> / 10
3	Motion predictions and magnets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> / 10
4	Electric forces and magnet design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> / 10
5	Magnet problems and force review	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> / 10
6	Grade 4 preview: speed and energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> / 10
7	Energy transfer and collisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> / 10
8	Energy-device design practice	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/> / 10

## Reflection Notes

A Grade 3 idea that feels strong: \_\_\_\_\_

A Grade 4 preview idea to revisit: \_\_\_\_\_



# ★ Table of Contents ★

*Here's what we'll explore together!*

★ Week 1: <i>Balanced and Unbalanced Forces</i> .....	2
★ Week 2: <i>Balanced and Unbalanced Forces and Patterns of Motion</i> ...	8
★ Week 3: <i>Patterns of Motion and Magnetic and Electric Forces</i> .....	14
★ Week 4: <i>Magnetic and Electric Forces and Solving Problems with Magnets</i> .....	20
★ Week 5: <i>Solving Problems with Magnets and Balanced and Unbalanced Forces</i> .....	26
★ Week 6: <i>Grade 3 Review and Grade 4 Preview</i> .....	32
★ Week 7: <i>Grade 4 Preview: Energy Moves from Place to Place and Energy in Collisions</i> .....	38
★ Week 8: <i>Grade 4 Preview: Energy in Collisions and Converting Energy by Design</i> .....	44
★ <i>Answer Key &amp; Explanations</i> .....	50



*Let's learn and have fun!*



WEEK

1

## *Balanced and Unbalanced Forces*

*Practice this week's science ideas.*

### *This Week's Days*

- |              |                                   |
|--------------|-----------------------------------|
| <i>Day 1</i> | <i>Pushes and Pulls</i>           |
| <i>Day 2</i> | <i>Balanced Forces</i>            |
| <i>Day 3</i> | <i>Unbalanced Forces</i>          |
| <i>Day 4</i> | <i>Planning a Fair Force Test</i> |
| <i>Day 5</i> | <i>Week 1 Quiz</i>                |

**Week 1 Day 1** *Pushes and Pulls*

**Big idea:** Important ideas include force as a push or a pull that can make an object start moving, stop moving, speed up, slow down, or change direction.

- **What to notice:** Every force has a strength (strong or gentle) and a direction (shown with an arrow).
- **Important examples:** Include gravity only as a force that pulls objects down.
- **Science thinking:** Use everyday examples: opening doors, kicking balls, pulling wagons, sliding books.
- **Use evidence:** You identify the force, its direction, and what it does to motion in pictured situations, then draw your first force arrows.
- **Common mistake:** Keep everything qualitative; no formulas or units.
- **Grade 3 check:** Key words for this lesson: force, push, pull, motion, balanced.

**Check yourself:** A strong answer names the science idea and uses evidence, data, a model, or a clear example.



Pushes and Pulls: study the picture, model, or data before answering.



## Practice

## Bridge Practice

- 1 What is the main idea of Pushes and Pulls? \_\_\_\_\_
- 2 Name two important details from today's review. \_\_\_\_\_
- 3 Which key word helps you talk about this lesson? \_\_\_\_\_
- 4 What evidence or model could help support an answer about Pushes and Pulls? \_\_\_\_\_
- 5 Why does this lesson belong in the chapter Balanced and Unbalanced Forces? \_\_\_\_\_
- 6 A classmate gives an answer with no evidence. What should they add? \_\_\_\_\_



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# Answer Key & Explanations

Check the answer first, then read the explanation to see the evidence or reasoning.

## Week 1 Day 1: Pushes and Pulls

### Answers

- 1 Important ideas include force as a push or a pull that can make an object start moving, stop moving, speed up, slow down, or change direction.
- 2 Accept two accurate review details, such as one fact about force and one example, model, or evidence source from the lesson.
- 3 force
- 4 Use a picture, table, graph, model, observation, or source fact from the lesson.
- 5 It helps explain Balanced and Unbalanced Forces.
- 6 a fact, observation, data point, or model from the lesson.

### Explanations

- 1 Start with the lesson's core idea. The review explains that Important ideas include force as a push or a pull that can make an object start moving, stop moving, speed up, slow down, or change direction.
- 2 Good details come straight from the review bullets, not from a guess. Use two facts that help explain the lesson idea.
- 3 The word force names one of the important science ideas in this lesson. Use it when you explain your answer.
- 4 Evidence can be an observation, a table, a graph, a model, or a source fact. It must connect directly to the claim.
- 5 The topic is one part of the larger chapter idea, Balanced and Unbalanced Forces. Connecting the day to the chapter helps you see the pattern across lessons.
- 6 Science answers are stronger when they name the evidence. The evidence shows why the claim should be trusted.

## Week 1 Day 2: Balanced Forces

### Answers

- 1 Two forces of equal strength pushing or pulling in opposite directions are balanced: they cancel each other, so the object's motion does not change.



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2 Accept two accurate review details, such as one fact about force and one example, model, or evidence source from the lesson.

3 force

4 Use a picture, table, graph, model, observation, or source fact from the lesson.

5 It helps explain Balanced and Unbalanced Forces.

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**Explanations**

1 Start with the lesson’s core idea. The review explains that Two forces of equal strength pushing or pulling in opposite directions are balanced: they cancel each other, so the object’s motion does not change.

2 Good details come straight from the review bullets, not from a guess. Use two facts that help explain the lesson idea.

3 The word force names one of the important science ideas in this lesson. Use it when you explain your answer.

4 Evidence can be an observation, a table, a graph, a model, or a source fact. It must connect directly to the claim.

5 The topic is one part of the larger chapter idea, Balanced and Unbalanced Forces. Connecting the day to the chapter helps you see the pattern across lessons.

6 Science answers are stronger when they name the evidence. The evidence shows why the claim should be trusted.

**Week 1 Day 3: Unbalanced Forces**

**Answers**

1 Forces that do not cancel are unbalanced, and unbalanced forces change motion: the object starts, stops, speeds up, slows down, or turns toward the stronger force.

2 Accept two accurate review details, such as one fact about force and one example, model, or evidence source from the lesson.

3 force

4 Use a picture, table, graph, model, observation, or source fact from the lesson.

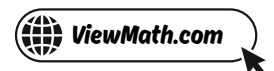
5 It helps explain Balanced and Unbalanced Forces.

6 a fact, observation, data point, or model from the lesson.

**Explanations**



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- 1 Start with the lesson's core idea. The review explains that Forces that do not cancel are unbalanced, and unbalanced forces change motion: the object starts, stops, speeds up, slows down, or turns toward the stronger force.
- 2 Good details come straight from the review bullets, not from a guess. Use two facts that help explain the lesson idea.
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- 4 Evidence can be an observation, a table, a graph, a model, or a source fact. It must connect directly to the claim.
- 5 The topic is one part of the larger chapter idea, Balanced and Unbalanced Forces. Connecting the day to the chapter helps you see the pattern across lessons.
- 6 Science answers are stronger when they name the evidence. The evidence shows why the claim should be trusted.

### Week 1 Day 4: Planning a Fair Force Test

#### Answers

- 1 How scientists plan an investigation before doing it: a question, a prediction, what to change, what to keep the same, and what to observe.
- 2 Accept two accurate review details, such as one fact about force and one example, model, or evidence source from the lesson.
- 3 force
- 4 Use a picture, table, graph, model, observation, or source fact from the lesson.
- 5 It helps explain Balanced and Unbalanced Forces.
- 6 a fact, observation, data point, or model from the lesson.

#### Explanations

- 1 Start with the lesson's core idea. The review explains that How scientists plan an investigation before doing it: a question, a prediction, what to change, what to keep the same, and what to observe.
- 2 Good details come straight from the review bullets, not from a guess. Use two facts that help explain the lesson idea.
- 3 The word force names one of the important science ideas in this lesson. Use it when you explain your answer.



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