

# *Activities* for the Differentiated Classroom

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# Connections to Standards

This chart shows the national academic standards covered in each chapter.

<b>MATHEMATICS</b>	<b>Standards are covered on pages</b>
Numbers and Operations—Understand numbers, ways of representing numbers, relationships among numbers, and number systems.	13
Geometry—Use visualization, spatial reasoning, and geometric modeling to solve problems.	18, 20
Measurement—Apply appropriate techniques, tools, and formulas to determine measurement.	17
Data Analysis and Probability—Select and use appropriate statistical methods to analyze data.	22
Problem Solving—Solve problems that arise in mathematics and in other contexts.	16
Problem Solving—Apply and adapt a variety of appropriate strategies to solve problems.	9
Problem Solving—Monitor and reflect on the process of mathematical problem solving.	10, 12
Reasoning and Proof—Develop and evaluate mathematical arguments and proofs.	15

<b>SCIENCE</b>	<b>Standards are covered on pages</b>
Science as Inquiry—Understand about scientific inquiry.	23
Physical Science—Understand properties of objects and materials.	26
Physical Science—Understand light, heat, electricity, and magnetism.	25, 27, 28
Life Science—Understand characteristics of organisms.	31
Life Science—Understand organisms and environments.	31, 34
Earth and Space Science—Understand properties of earth materials.	37
Science in Personal and Social Perspectives—Understand changes in environments.	35
History and Nature of Science—Understand science as a human endeavor.	38, 41

<b>SOCIAL STUDIES</b>	<b>Standards are covered on pages</b>
Understand culture and cultural diversity.	59
Understand the ways human beings view themselves in and over time.	47, 57
Understand interactions among people, places, and environments.	47
Understand individual development and identity.	42
Understand interactions among individuals, groups, and institutions.	47, 57
Understand how people create and change structures of power, authority, and governance.	56
Understand how people organize for the production, distribution, and consumption of goods and services.	49, 54
Understand the ideals, principles, and practices of citizenship in a democratic republic.	51, 52

<b>LANGUAGE ARTS</b>	<b>Standards are covered on pages</b>
Read a wide range of literature from many periods in many genres to build an understanding of the many dimensions (e.g., philosophical, ethical, aesthetic) of human experience.	62
Apply a wide range of strategies to comprehend, interpret, evaluate, and appreciate texts. Draw on prior experience, interactions with other readers and writers, knowledge of word meaning and of other texts, word identification strategies, and understanding of textual features.	60, 63, 66, 73
Apply knowledge of language structure, language conventions (e.g., spelling and punctuation), media techniques, figurative language, and genre to create, critique, and discuss print and nonprint texts.	76, 78
Develop an understanding of and respect for diversity in language use, patterns, and dialects across cultures, ethnic groups, geographic regions, and social roles.	75
Participate as knowledgeable, reflective, creative, and critical members of a variety of literacy communities.	69
Use spoken, written, and visual language to accomplish a purpose (e.g., for learning, enjoyment, persuasion, and the exchange of information).	65, 71

# Science

## Hook into the Scientific Method

### Standard

Science as Inquiry—Understand about scientific inquiry.

### Objective

Students will use a mnemonic device to remember the steps of the scientific method.

Students enjoy science when it involves doing experiments, not just rote learning from a textbook. However, in order to understand how to investigate a problem, students must understand the scientific method, the process in which experiments are used to answer questions.

### Step 1: Question

The first step is to formulate a question. Students ask themselves what they are trying to discover from the experiment. They also read and conduct research to find out what others have already learned about their question. This helps students narrow the focus of their inquiry.

### Strategies

Rehearsal

Mnemonics

Think-Pair-Share



## Step 2: Hypothesis

The second step is to formulate the hypothesis. This means that students make an educated guess as to the outcome of their experiment. Their hypothesis must be measurable.

## Step 3: Experiment

The third step is to test the hypothesis by doing an experiment. The object of the experiment is to try to confirm or disprove the hypothesis.

## Step 4: Analysis

The fourth step in the process is to analyze the data. Students will evaluate what the data tells them and decide if it supports their hypothesis.

## Step 5: Conclusion

The fifth step is to form a conclusion. To conclude the inquiry, students must use the results of their experiment to reject or confirm the hypothesis.

The five steps of the scientific method can be difficult for students to remember. Use the following rehearsal activity to create a mnemonic that helps students remember the steps.

## Steps of the Scientific Method

Question

Hypothesis

Experiment

Analysis

Conclusion

Have students use the Think-Pair-Share method to come up with clever, easy-to-remember mnemonic devices. First, have each student think individually about words and phrases that could represent the five steps of the scientific method. Then have students work with partners to brainstorm a mnemonic device they will present to the class. Invite the class to vote on which device is the most imaginative, easiest to remember, and so on. Some examples include:

**Quick Horses Eat Apples Carelessly!**

**Quit Having Early Art Class!**

**Queen Heather Eats Apple Cake!**

**Quick, Henry, Earn Another Candy!**

# Opposites Attract

## Standard

Physical Science—Understand light, heat, electricity, and magnetism.

## Objective

Students will pretend to be magnetic poles searching for their polar opposites.

## Materials

rulers

index cards (one for each student)

tape or safety pins

song "Opposites Attract" by Paula Abdul (on CD or audiotape)

CD or tape player

How many times do you hear students singing or humming jingles or popular songs? Music can make learning and remembering concepts easier. Connect to students' musical intelligence when introducing the concept that polar opposites of magnets attract by using the first verse and chorus of Paula Abdul's song "Opposites Attract."

## Strategies

Multiple intelligences

Role play

1. Before the activity, use a marker to write *N* on half of the index cards and *S* on the other half. Give half of the students an *N* card and the other half an *S* card. Have students tape or pin the cards to their shirts.
2. Give each "N student" two rulers, one for each hand. Prepare a "student magnet" by pairing an N student with an "S student" (the N student extends the ruler in his or her left hand to the S student).
3. Play the first verse and chorus of the song. (Use the first verse and chorus only, as the second verse may not be appropriate.) While the music plays, N–S magnets walk around as a unit, looking for their opposites. For example, an N student extends a ruler to an S student. If an N student approaches another N student, or an S student approaches another S student, they shout *Repel!* and back away. The object of the game is to connect all the "magnets" by the time the music ends.

