

Previewing Strategy: Building and Linking Background Knowledge (Activating Thinking Strategies)

Example Linking to Background Knowledge Strategy: Brainstorm Carousel

Brainstorm Carousel (Saphier and Haley, 1993) provides students with an opportunity to list everything they know or have learned about a topic. It may be used as an Activating Strategy or it may be used during the lesson for students to reflect on the learning of major concepts.

Question #1	Question #2	Question #3
Question #4	Question #5	Question #6

Steps for Previewing Brainstorm Carousel

When planning, the most important question you need to answer is, “What types of ideas and information should students consider about a topic prior to the start of the lesson?”

1. Complete the questions or prompts in advance to ensure they are appropriate for eliciting multiple ideas and predictions.
2. Place charts around the room (preferably posted on walls for writings – however, tables or desks that students can gather around will do). List the major topics or questions to be considered on the charts (one per chart).
3. Model the process by using a Think Aloud to brainstorm ideas and important information about each topic.
4. Pairs or groups of students rotate together to brainstorm and discuss each topic.
 - a. Position each pair or group at a specific chart. Each team has marking pens or a set of different color post-it notes.
 - b. At the signal, students list what they know about the topic. When the teacher signals again, the students move to the next chart (clockwise).
 - c. The group reads the responses already on the chart, then adds to the list of ideas. This routine is repeated until all groups have been to each chart.
5. The groups may do a “walk around the gallery” to read the responses of the class.
6. Students individually record important ideas in their notebook to be referred to during the lesson.

Considerations for Previewing Brainstorm Carousel

- Use different markers to indicate different teams.
- Instead of a Gallery Walk, each group can return to their original chart, categorize the responses and share with the class.

Example Brainstorm Carousel

Topic: Acid Rain

Question #1

What causes acid rain?

Question #2

What are different ways to prevent acid rain?

Question #3

How do think acid rain will affect our health?

Question #4

How might acid rain effect our economy?







Question #5

How does acid rain affect aquatic ecosystems?

Question #6

How might acid rain affect animals?

Topic: Which characteristics belong to each of the polygons?

<p>Question #1</p>  <p>What do you know about this shape?</p>	<p>Question #2</p>  <p>What do you know about this shape?</p>	<p>Question #3</p>  <p>What do you know about this shape?</p>
<p>Question #4</p>  <p>What do you know about this shape?</p>	<p>Question #5</p>  <p>What do you know about this shape?</p>	<p>Question #6</p>  <p>What do you know about this shape?</p>

Topic: How do I find the fractional part of a number?

<p>Question #1</p> <p>$\frac{1}{2}$</p>	<p>Question #2</p> <p>$\frac{1}{3}$</p>	<p>Question #3</p> <p>$\frac{2}{3}$</p>
<p>Question #4</p> <p>$\frac{1}{4}$</p>	<p>Question #5</p> <p>$\frac{3}{4}$</p>	<p>Each group will draw a diagram showing the fractional part of a group shown on the chart or write a sentence about the fraction.</p>

Example Linking to Background Knowledge Strategy:**The Answer Is... What is the Question?**

The Answer Is... What is the Question? may be used as an Activating Strategy or it may be used during the lesson for students to reflect on the learning of major concepts. Students are given the end result and have to imagine, brainstorm, and contemplate what could have been asked to have these results.

The Answer is _____
Questions: <ul style="list-style-type: none">• Why _____?• How _____?• What if _____?• What _____?

Steps for Previewing The Answer Is... What is the Question?

When planning, the most important question you need to answer is, “What answer would be appropriate for brainstorming important questions about a topic?”

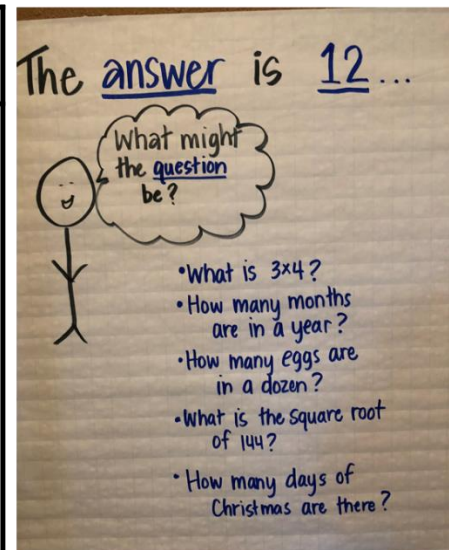
1. Choose an “answer” within a topic that students would benefit from posing corresponding questions.
2. Complete the strategy in advance to brainstorm possible questions and consider areas of difficulty for students.
3. Model the process using a simple example:
 - a. Write the “answer” in the first box.
 - b. In the second box, Think Aloud to brainstorm questions that have this answer.
4. Pairs or groups of students may practice collaboratively in subsequent rounds.
5. Students record questions for the answer in their notebook to be referred to during the lesson.

Considerations for Previewing The Answer Is... What is the Question?

- For retrieval practice, the answer should have a clear corresponding question.
- For critical thinking practice, answers should lead to several possible questions.
- Individuals may practice and compare answers using whiteboards.
- Question stems may be used to help students categorize the purpose of specific types of questions (i.e., why, how, what if, etc.).
- Similar to finding the effect in cause and effect scenarios; however, divergent, unique answers are encouraged contrary to the cause/effect type of task where there is a narrow answer choice for a particular cause.

Example The Answer Is... What is the Question?

<p>The Answer is 12</p>
<p>Questions:</p> <ul style="list-style-type: none"> • How many months in a year? • How many inches in a foot? • How much is in a dozen? • What is 2×6? • What is 3×4? • What is the number of days in the "Twelve Days of Christmas" song?



Example Linking to Background Knowledge Strategy: Odd One Out

Odd One Out may be used as an Activating Strategy to build background knowledge, or to make connections among important concepts. Students are given a list or set of 3 to 5 items to justify why each one could be the “odd one out.”

Which is the “odd one out” and why?

Item 1	Item 2
Item 3	Item 4

Steps for Previewing Odd One Out

When planning, the most important question you need to answer is, “What are the relationships among the concepts/people/places, including categories or obvious differences?”

1. Complete the strategy in advance to brainstorm possible items and their relationships and consider areas of difficulty for students.
2. Model the process using a simple example:
 - a. Provide students with a list of three or four related items relevant to the lesson content. (You can also use pictures.)
 - b. Think Aloud which one is the “odd one out” explaining why it doesn’t fit with the others and justify your reasoning.
3. Pairs or groups of students may practice collaboratively by creating their own “odd one out” lists and trading with other students.
4. Students record questions for the answer in their notebook to be referred to during the lesson.

Considerations for Previewing Odd One Out

- Students should name the “categories” of the items or explain how words are related. In this version it is not enough to just find a difference.
- Use visuals to scaffold for students with limited language proficiency.
- Depending on the things named, there may be more than one right answer. Students may vote to pick the winner.
- It is possible to have only one right answer, but it should not be too obvious to students.

Examples of Odd One Out

Which is the “odd one out” and why?

Item 1 12	Item 2 45
Item 3 34	Item 4 42

Which is the “odd one out” and why?

A. Alexander the Great	B. Columbus	C. Charlemagne
D. Winston Churchill	E. George Washington	

Which is the “odd one out” and why?

Item 1



Item 2



Item 3



Example Building Background Knowledge Strategy: Probable Passage

Probable Passage helps students learn new vocabulary before reading. Students sort selected words into story element categories: setting, characters, problem, solution, and ending. To improve retention, pictures are attached to each element. Students complete their sort and write a predictable passage using the words from each category about the book.

Setting	Characters	Problem	Solution	Ending
Prediction: 				

Steps for Previewing the Probable Passage

When planning, the most important question you need to answer is, “Which vocabulary words may be selected to elaborate on a story’s literary elements?”

1. Complete the strategy in advance to ensure the appropriate words for each story element are chosen.
2. Distribute the Probable Passage organizer or have students create it in their notebook.
3. Select a story or chapter of a book that students are familiar with or that is a non-content specific example and identify key vocabulary words that students must know.
4. Review the text element categories: setting, characters, problem, solution, and ending.
5. Model the process of using the Probable Passage:
 - a. Think Aloud how to sort the vocabulary into the story elements below.
Then use the words that you sorted to predict what this story is mainly about.
 - b. Create sentences using the different words to predict the Main Idea.
6. Pairs or groups practice brainstorming and categorizing vocabulary words as Probable Passages. Preview the vocabulary words with students, checking for misunderstandings.
7. Students individually write their own predictable passage using words from each category and record them in their notebook to be referred to during the lesson.

Considerations for Previewing Probable Passages

- During pairs practice, display Probable Passages as a chart and record the words in the appropriate category as students share their results. Correct misunderstandings.
- Make sets of cards with one word on each card. Have students in pairs or small groups sort the cards into the story element categories and then collectively chart their predictions. This technique is useful in reading groups and reading centers.

Example Probable Passage

Through the Cracks by Carolyn Sollman, Barbara Emmons, Judith Paolini

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dilapidated	shrinking	school	boring
uninspiring	failing	students	teachers
lost	cracks	gloomy	sinking
unchallenged	eager	learning	engaging
Christopher	bright	Stella	instruction
passing	connected	inspired	growing

Setting	Characters	Problem	Solution	Ending
school	Christopher Stella teachers students	failing shrinking cracks instruction unchallenged lost boring	passing connected engaging learning	inspired growing
Prediction: Christopher and Stella are students in a school who are either unchallenged during instruction or are failing and lost, falling between the cracks of notice. Teachers need to support these types of students' learning by engaging them in class, helping them to grow and be inspired.				

Example Building Background Knowledge Strategy:

A Picture is Worth a 1,000 Words

A Picture is Worth a 1,000 Words has students put together clues in images or objects to reach conclusions.

Steps for Previewing A Picture is Worth a 1,000 Words

When planning, the most important question you need to answer is, “What details can be identified in the image or object that provide clues to its importance?”

1. Complete the strategy in advance to ensure that when examined the visual provides important background information to help prepare students for the lesson.
2. Select an image or object that students are familiar with or that is a non-content specific example and examine it for important details that provide clues about a topic.
3. Model the process of using A Picture is Worth a 1,000 Words:
 - a. Think Aloud how examine the image or object to identify important details, including information regarding its origin, setting, viewpoint, and credibility.
 - b. Model how to infer what is important using these clues.
 - c. Think Aloud how to generate questions using the inferences.
4. Pairs or groups practice analyzing images to identify details, infer why it is important, and generate questions to consider during a lesson.
5. Students individually write their own inferences and questions and record them in their notebook to be referred to during the lesson.

Considerations for Previewing A Picture is Worth a 1,000 Words

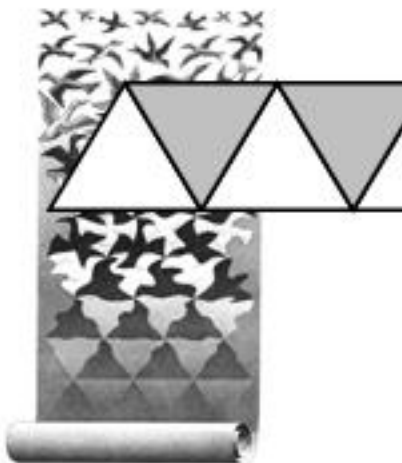
- Find an image or object (painting, political cartoon, artifact, photograph, etc.) that illustrates a concept related to the topic of the lessons. (There are several historical photographs available in the American Memory collection of the Library of Congress that will work well for this.)
- Have students write a caption for the image and share with the class.

Examples of A Picture is Worth a 1,000 Words



Slides, Flips, and Turns

Use Escher artwork to introduce transformational geometry. Have students explore samples of art designs to see if they can discover a pattern.



M. C. Escher (1955)



Samples of Photos or Slides



Geometry in Design

Create a series of slides from your own photos or from the Internet that contain different shapes, and line and angle relationships. These slides may contain man-made items such as buildings and clothing. They may also be pictures of landscapes and items of nature. Create a chart (3-inch square for each slide) for students to record their findings as they view the slides. Students look for relationships between lines, angles, types of 2-D or 3-D figures during viewing.

Tall Tales

Show images of different Tall Tale characters and have students infer what they all might have in common.

Balance

Display a mobile and have students brainstorm what might keep it balanced.

Weather

Have students analyze clues in various works of art to predict the weather and/or the season depicted.

Underground Railroad

Display a photograph of the Swing Low: Harriet Tubman Memorial in NYC. Without telling students the name of the statue, have them make observations and predictions as to what it might represent.

Example Building Background Knowledge Strategy: Matching Game

Students use prior knowledge and spatial perception to correctly match pieces of information. The first team to complete the task correctly wins.

Steps for Previewing Matching Game

When planning, the most important question you need to answer is, “What information can be matched to build background knowledge for students?”

1. Complete the strategy in advance to ensure matches are appropriate.
2. Place students in teams of 2 or more. Provide students with cards that match.
Cut the cards apart for students or allow them to cut them apart.
3. Select information that students are familiar with or that is a non-content specific example.
4. Model the process for Matching Game:
 - a. Think Aloud about each piece of information.
 - b. Model how to match information using categories such as purpose, impact, importance, etc.
5. Pairs or groups practice matching information using another non-content, simple example, or familiar topic. Students must match the cards correctly to demonstrate prior knowledge.
6. Students individually write the matches in their notebook to be referred to during the lesson.

Considerations for Previewing Matching Game

- As soon as the team finishes, the teacher checks for accuracy. Points can be awarded to the teams that have all matches correct in the time limit.
- Give each student in the class or small group a card. Students walk around the class or area to find the other student(s) that has the matching card.





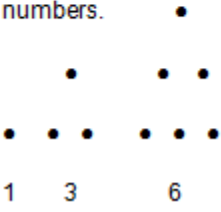
Example Matching Games

Essential Question: How can I recognize a pattern unit and extend the pattern?

Prior Knowledge: Students must know how to find patterns with matching pattern units. In this Matching Game, students will find three cards (may use only two sets of cards). One card will have the pattern unit written in letters. The other two cards display a pattern with the same pattern unit.

Essential Question: How can I identify patterns to help me solve problems?

Cut the following chart into strips for pairs of students to put back together.

Sequence	Finding the Pattern	Description of Pattern
1, 5, 9, 13, 17, 21, 25...	1, 5, 9, 13, 17,  +4 +4 +4 +4	Add 4 to each term in the sequence to find the next term.
1, 1/2, 1/4, 1/8, __, __	1, 1/2, 1/4, 1/8  x 1/2 x 1/2, x 1/2	Multiply each term by 1/2 to identify the next term. The next two terms are 1/16 and 1/32.
1.20, 1.05, 0.90, 0.75	1.20, 1.05, 0.90, 0.75  -.15 -.15 -.15	Subtract 0.15 from each term to find next term.
1, 3, 6, 10, 15, 21...	1, 3, 6, 10, 15, 21  +2, +3 +4 +5 +6	Known as triangular numbers.  1 3 6