



Teaching Learning Succeeding

Cognitive Engagement Strategies



“Student engagement in learning (3c) is the centerpiece of the framework for teaching; all other components contribute to it. When students are engaged in learning, they are...intellectually active in learning important and challenging content....developing their understanding through what they do” (Danielson, 2011).

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Top Cognitive Engagement Strategies

For Use in Almost Any Lesson.

X = Common use

~ = Could be/not as common

Strategy	Typical Grade Level and Content	When to Use This Strategy		
		Start of Lesson	During the Lesson	Closure at End of the Lesson
<u>Think, Write, Check, and Perfect</u>	K-12 Almost all.	X	X	~
<u>10-2 (minutes) Increase Engagement in Video or Lecture</u>	1-12 Any content where the teacher shows a video or lectures for 4 minutes or more	~	X	X
<u>Numbered Heads</u>	K-12 Any content where you want students to work as a team to discuss a question	~	X	X
<u>Read and React</u>	K-12 Any content that involves reading; Strategy promotes comprehension		X (Walk around and read what students are writing and/or saying to one another)	X
<u>Inquiry Writing*</u>	2-12 Any content where students need to think and process what they are learning	X	X	X

* Inquiry Writing is structured so that it can be used at the beginning, middle, and end of a lesson.

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Think, Write, Check, and Perfect

1. Pose a problem or question.
2. Provide think time.
3. Have students write answer.
4. Ask them to pair with a partner. Students check their partner's answers, and they perfect each other's responses.
5. Have students share with a large group using active participation.

A. Common Applications

- Ÿ ***Think, Write, Check, & Perfect*** is a good method to promote involvement in larger group discussion.
- Ÿ It can be used as a “bell ringer” when you start class as a method to engage students allowing time to check attendance, homework etc.

B. Suggestions for Effective Use

During Step 4 give students a specific time limit.

- Ÿ At Step 5, call on students without their hand up; communicating that if I give you time to talk to a partner, you need to be ready with an answer.

C. [Video model](#) of this strategy.

10 - 2 - Increasing Focus During Direct Instruction

1. Stop every 5, 10 or 15 minutes (younger the student, the shorter the interval), giving students a chance to process the information.
2. Have students do one or more of the following:
 - Think about the last (5, 10, 15) minutes. Summarize it in your own words.
 - Think about the last (5, 10, 15) minutes. What do you think is the most complex or difficult concept?
 - Think about the last (5, 10, 15) minutes. Answer this question ...
 - Think about the last (5, 10, 15) minutes. What connections can you make to other subjects?
 - Think about the last (5, 10, 15) minutes. How can you apply these ideas in your own life?
 - Think about the last (5, 10, 15) minutes. Predict the direction of the lecture.
 - Think about the last (5, 10, 15) minutes. Turn to your partner and see if he/she heard the same thing you heard.

A. Common Applications

Ÿ **10-2** is often used not just for lectures but to promote focus during a video.

Ÿ The STOP portion of **10-2** can serve as a check for understanding by focusing on what the student does during the “2” work.

B. Suggestions for Effective Use

Ÿ Don’t become so enthralled with the lecture that you forget to stop.

Remember the goal is to have the information organized and refined in their minds.

Ÿ Write the STOP activity—summarize in your own words, solve this problem, tell your partner—into the lesson plan.

C. [Video](#) of teachers describing how to use 10-2.

Numbered Heads

1. Divide students into teams of three or four.
2. In each team, count off by threes or fours.
3. The teacher poses a question.
4. Students have 30-60 sec. of individual think time.
5. Group think time—put your heads together, decide on the best answer; make sure everyone knows the answer.
6. The teacher calls a number (spin spinner, roll dice, etc.). Ex. All “ones” stand. Use active participation routine: sample, sample, and signal, choral, written (whiteboards).
7. Repeat steps 3 to 6.

A. Common Applications

- *Numbered Heads* works well as a review activity, check for understanding, or method to get everyone on the same page—e.g. scaffolding activity.
- Comprehension and knowledge level questions are good ways to introduce *Numbered Heads*. Once the students know the process, use more difficult, complex questions or multi-step problems as content sources.
- Once you have *Numbered Heads* teams established, you can use the spinner and numbers as a method of calling on students to answer other questions.

B. Suggestions for Effective Use

- Encourage students to jot down the answers at Steps 4 and 5.
- During Step 6, call on students who are seated every once and awhile. “Jim, what did Clarisse say?” This keeps them focused on the answers even if their number was not called.
- Encourage students to whisper to each other so that the other teams don’t steal their answers.
- Offer opportunities to add on to one another as you call on different students. For example, “Can you add on to what Mike said? What is a different way of explaining Kim’s answer?”

C. [Video model](#) of this strategy.

Source: Spencer Kagan

Read and React

1. Assign pairs paragraphs to read (younger students 100-200 words; older students maximum 500 words).
2. Tell them to read so that they are prepared to (choose 1 or more): summarize and/or connect.
3. Both students read the same paragraph.
4. One student summarizes and/or connects.
5. Other student "checks and perfects." For example, "I agree with... because..., I can add..., A question I have..., This connects to..."
6. Switch roles. Repeat steps 3, 4, and 5. (Consider an individual written component to the end of step 5.)

A. Common Applications

- Ÿ ***Read and React*** is an excellent method to promote comprehension, especially of nonfiction passages.
- Ÿ It is commonly used as an alternative to lectures.

B. Suggestions for Effective Use

- Ÿ This is a complex strategy. To promote understanding after reviewing the instructions, stop and check for understanding before allowing the students to begin—"Turn to your partner and describe the process. Partner, you check and perfect your partner's description."
- Ÿ Have an advanced organizer for students to write their responses. This provides an easy method to assess how students are progressing.
- Ÿ Consider the reading ability level of your students before assigning the reading.
- Ÿ Consider who might be best paired with whom.
- Ÿ Have an activity for students who finish early—solve a problem, answer a question, create a question.

Source: Paliscar & Brown

C. [Video model](#) of this strategy.

Inquiry Writing

Use #1: Generic

Directions: You will answer a series of questions during class today. When directed, compare and contrast your answer with your partner's response. Then, be prepared to share either perspective with the class.

Sample Questions

Introductory Questions/Writing Task (Check-In)

- ? Why do you think ...
- ? List as many ...
- ? What ideas come to mind ...
- ? What do you know about ...
- ? How would you find out more about ...
- ? What is your first idea when you think about ...
- ? How are some ways we might deal with ...

Reactionary Question/Writing Task (Check On)

- ? Do you agree with ...
- ? Do you disagree with ...
- ? What are some questions raised so far ...
- ? What impressed you the most ...
- ? What seemed most important ...
- ? I'm still confused about ...
- ? Yes, but ...

Follow-up Question/Writing Task (Check Out)

- ? I've changed my thinking about ...
- ? Movie titles for this could be ...
- ? Key headlines for this topic might include ...
- ? A new way to interpret ...
- ? Draw an analogy between ____ and ____ ...
- ? What has to happen next ...
- ? I would like to know more about ...

C. [Video model](#) of this strategy. Watch from the beginning to 2:45.

Use #2: Of Inquiry Writing (content specific)

SOCIAL STUDIES: The Constitution

DIRECTIONS: You will work with a partner to write a short response to the following three questions as part of the lecture. You are to write down your own thoughts first, and then share them with your partner when directed to do so.

SOCIAL STUDIES LECTURE ON "The Constitution"

Introductory Writing Task: Why do you think the framers of the Constitution were so concerned about separation of powers?

Reactionary Writing Task: What impressed you the most about the workings of the Constitutional Convention?

Follow-up Writing Task: Create a series of headlines announcing the completion of work on the Constitution.

SCIENCE: Pollution

DIRECTIONS: You will work with a partner to write a short response to each of the following three questions as part of the lecture. You are to write down your own thoughts first, and then share them with your partner when directed to do so.

SCIENCE LECTURE ON "Pollution"

Introductory Writing Task: Think about your community. List as many sources of pollution as you can. Be specific in your comments.

Reactionary Writing Task: Of the three causes of pollution discussed in today's lecture, which do you think is the most serious and why?

Follow-up Writing Task: It is the year 2050. Air pollution has become so bad that Congress has mandated the use of car pools for all workers. How do you think the life of the worker will be changed?

MATH: Line and Bar Graphs

DIRECTIONS: You will work with a partner to write a short response to each of the following three questions as part of the lecture. You are to write down your own thoughts first, and then share them with your partner when directed to do so.

MATH LECTURE ON "Line and Bar Graphs"

Introductory Writing Task: What kind of information do you think is best communicated through the use of a line or bar graph? Give examples to illustrate your ideas.

Reactionary Writing Task: What are three things you need to keep in mind when constructing a line or bar graph?

Follow-up Writing Task: Which is easiest for you to interpret (or construct) – a line graph or a bar graph? How do you know?