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**Gaming and simulations assist students in developing alternative learning strategies and aid in problem solving (Hattie, 2023).**

## STRATEGY 4

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# Games



### WHAT: DEFINING THE STRATEGY

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One of the games I love to play with teachers is called a *People Search*. This is a perfect game for you to play with students. Students have to find answers to 12 short, unfinished statements in a  $4 \times 3$  grid drawn on a piece of paper. The statements should reflect content that you would like for students to review. Students can supply only one answer for themselves. Then, they must get the remaining 11 answers from 11 different classmates. Students get up and move around the room to fast-paced music, finding peers who can answer correctly and place their initials inside each block. Here is the catch. One student can provide only one answer for another, so students have to talk to at least 11 additional students in class when looking for answers. Remember that you know the answers to all these but can provide only one answer for each student with your initials. That student can now pass your answer to other students with their initials. Be sure to give different students different answers so that the correct answers are being passed. The winner is the first student to get back to you with 12 different initials, including their own, and all correct answers. Review the answers to all statements with the entire class by tossing a ball to nonvolunteers.

As I travel around the United States presenting, I realize that the fun has gone out of teaching and learning in many classrooms. With increased emphasis on standardized and criterion-referenced testing, benchmarks, and accountability, school is just not fun anymore! In the name of increased academic achievement, many school systems are even removing recess time from the students' school day. Fortunately, other school systems are doing just the opposite. They are even recommending that students take their more difficult subjects immediately after taking physical education. As I taught in Singapore, where students have some of the highest math scores in the world, I noticed that students were spending time learning math and then, just as importantly, stopping math instruction for recess.

While preschool children love to play games, it is also one of the 12 principles that keep people living beyond the age of 80 (Tate, 2022). There is even

a pertinent saying: *You don't stop playing because you grow old. You grow old because you stop playing.* That would lead one to believe that games are beneficial throughout one's life and that elementary, middle, and high school students would benefit from spirited interaction in the pleasurable strategy of game playing. Not only is the strategy motivating, but it can also put students' brains in a positive state. When students hear their teacher say, *Let's play a game!*, the stress level decreases, and the content retention rate increases. Boys, especially, are naturally motivated when a review is turned into a competition.



## WHY: THEORETICAL FRAMEWORK

The most practical use of gaming and simulations is to teach the consolidation of information since these techniques are much more enjoyable than drill and practice (Hattie, 2023).

When selecting a good learning game, Louisa Rosenheck of MIT suggests (1) providing players with a choice in the way they play the game or determine their goals in the game; (2) sparking students' curiosity so that they ask questions about how things work; and (3) determining an engaging and satisfying level of challenge (Boudreau, 2021).

Using games during instruction can foster social and emotional learning, increase participation, and encourage students to take risks (Nguyen, 2021).

Gaming and simulations can assist students in developing alternative learning strategies and can aid in problem solving and critical and trial-and-error thinking (Hattie, 2023).

Games can provide a fun and interactive way for students to promote problem solving and critical thinking skills while engaging with cross-curricular content (Lane, 2023).

A good game puts the learning first, allows students to solve problems on their own, and encourages students to collaborate and reflect to connect the game with the real world (Boudreau, 2021).

Especially for students who have trouble focusing or who have not found their niche in learning, gameplay can provide a more engaging, collaborative classroom as students learn to link content with low-stakes competition (Nguyen, 2021).

Gaming and simulations enable learners to see goals, can provide immediate feedback on performance, and can lead to positive reputations among peers (Hattie, 2023).

All ages can benefit from play since it improves brain function and relationships, relieves stress, and boosts creativity (Robinson et al., 2021).

Having students develop a game to test one another on their knowledge of the content not only results in fun but also forces students to rehearse and comprehend the concepts taught (Sousa, 2011).

When students develop a game's content as well as play the game, the amount of time they are exposed to and involved with the content is doubled (Allen, 2008).

Games are not only perfect for raising the level of *feel-good amines* in the brain, but, in the correct amounts, games can also increase cognition and working memory (Jensen, 2007, p. 4).

Students not only learn more when playing a game, but their participation in class and their motivation for learning math increases (Posamentier & Jaye, 2006).

The need for survival, belonging and love, power, freedom, and fun are the five critical needs that must be satisfied if people are to be effectively motivated (Glasser, 1999).



## HOW: INSTRUCTIONAL ACTIVITIES

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**WHO:** Elementary/Middle/High

**WHEN:** After a lesson

**CONTENT AREA(S):** Cross-curricular

- Buy a generic game board, such as Candy Land, or have students work in cooperative groups to construct an original game board according to the following guidelines: The game must provide at least 30 spaces, including *begin* and *end* spaces, two *move ahead* spaces, and two *go back* spaces. Have students make game question cards appropriate to whatever content needs to be reviewed with an accompanying answer key. Each group of students uses another group's game board and questions. Each group reviews content by rolling a number generator (die), moving the rolled number of spaces, selecting a card, and answering the designated question on the card. The student moves the rolled number of spaces if the answer is correct. If the answer is incorrect, the student stays put. The first student in each group to get to the end of the game board wins.

**WHO:** Elementary/Middle

**WHEN:** After a lesson

**CONTENT AREA(S):** Mathematics

- Following a lesson on factors, have students play the game SWITCH. Place a number on the SMART board, such as 36. Ask students to consider all of the factors of 36. Call out another number, such as 6. If the second number (6) is a factor of the pictured number (36), then students are given the count of five to switch seats with another student in class. If a student is not in another student's seat by the count of five, that student is considered out of the game. If the second

number is not a factor of the original number, then all students must remain seated. If students get up when they shouldn't, they are also out of the game. Give students several examples of numbers that are factors and not factors of the given number. Then, change to another given number. I played this game with a group of fifth-graders, and we were laughing so hard we could hardly finish the game. Let me tell you one that always gets students out. The original number is 36. The second number is 13. Many students get up since they think 13 is a factor of 36. It is not! If you are not teaching factors, change the content of SWITCH to a concept you are teaching that has positive and negative examples.

**WHO:** Elementary/Middle

**WHEN:** After a lesson

**CONTENT AREA(S):** Cross-curricular

- Have students make 15 matched pairs of content-area vocabulary words and their definitions. Have them write each word on one index card and the accompanying definition on another card. Have them spread the word and definition cards out face down in random order. Students work in pairs, taking turns matching each word to its appropriate definition. One match entitles the student to another try. The student with the most matches at the end of the game wins.

**WHO:** Elementary/Middle

**WHEN:** During or after a lesson

**CONTENT AREA(S):** Mathematics

- Have students work in pairs to become more automatic with addition facts. Give each pair a deck of cards. Have students deal the deck equally between the two of them. Have each student hold their half deck in their hand with the cards face down. Have them turn the top cards up simultaneously and add the value of the two cards together. For example, if one student turns over a 7 and another a 3, the first student to say 10 gets both cards. Jacks are worth 11 points, queens are worth 12 points, and kings are worth 13 points. Aces can be worth either 1 point or 14 points. The winner is the first student to take all the cards or the one with the most cards when the time is up. You may want to pair students with similar abilities together.

**WHO:** Elementary/Middle/High

**WHEN:** After a lesson

**CONTENT AREA(S):** Cross-curricular

- Write each content-area vocabulary word on a different index card. Have students play Charades by taking turns coming to the front of the room, selecting a word card, and acting out the word's definition. The student cannot speak or write but must use gestures to act out the word. The first student in class to guess the word gets a point. The student with the most points at the end of the game is the winner.

**WHO:** Elementary/Middle/High

**WHEN:** After a lesson

**CONTENT AREA(S):** Cross-curricular

- Play *Jeopardy* with the class by dividing them into three heterogeneous teams. Each team selects a team captain who gives the answers to the emcee and a scribe who keeps track of the points for the team and writes down the *Jeopardy* answer during the bonus round. Select key points from the chapter or unit of study and turn them into answers for the board. Five answers are placed into five columns of \$100 increments, with the easiest answers worth \$100 and the most difficult worth \$500. Teams then compete against one another by taking turns selecting an answer and providing the appropriate question. If the answer is correct, the points are added to the score. If the answers are incorrect, the points are subtracted. Include two *daily doubles* to make the game more interesting. Play continues according to the rules of the television show until all of the answers have been selected. Any team with money can wager any or all of it during the *bonus round*. The bonus question should be one of the most difficult ones. The team with the most money at the end of the game wins. A computerized version of *Jeopardy* is available.

**WHO:** Elementary/Middle/High

**WHEN:** After a lesson

**CONTENT AREA(S):** Cross-curricular

- Play *Wheel of Fortune* with the class by selecting a content-area vocabulary word previously taught. Place one line on the board for each letter in the chosen word. Have students take turns guessing alphabet letters that may be in the word. If the letter is in the word, write it on the correct line. If it is not, place the letter in a column off to the side. The first student to guess the word wins a point.

**Adaptation:** Have students work in pairs to select a word and have their partner guess it. The student in each pair who guesses their word in the shortest time is the winner.

**WHO:** Middle/High  
**WHEN:** During a lesson  
**CONTENT AREA(S):** Cross-curricular

- Have students play the Loop game by writing statements and questions similar to the following on index cards and passing them out randomly to students in the class. Students then stand and read the answer if they have the card that answers another student's question.
  - **I have a right triangle.** Who has a triangle with all sides congruent?
  - **I have an equilateral triangle.** Who has the number of degrees in each of its angles?
  - **I have 60 degrees.** Who has the segment of a triangle from a vertex to the midpoint of the opposite side?
  - **I have a median.** Who has a triangle with each angle less than 90 degrees?
  - **I have an acute triangle.** Who has a triangle with at least two congruent sides?
  - **I have an isosceles triangle.** Who has an equation whose graph is a line?
  - **I have a linear equation.** Who has the name of the side opposite the right angle in a right triangle?
  - **I have the hypotenuse.** Who has an equation for the area of a circle?
  - **I have  $a = \pi r^2$ .** Who has an equation that states that two ratios are equal?
  - **I have proportion.** Who has a quadrilateral with four congruent sides?

Students can write additional questions and answers to form the basis of the remaining cards for playing this game. You should have as many cards as students in class (Bulla, 1996). This game can also be adapted to any content area by changing the answers and the questions.

**Adaptation:** This game can be made more fun by recording the time it takes to get through one cycle and then repeating the cycle two more times in an effort to beat the time. The repetition of hearing the answers more than once is good for students' brains.

**WHO:** Elementary/Middle/High  
**WHEN:** During a lesson  
**CONTENT AREA(S):** Cross-curricular



- Provide students with a bingo sheet containing 25 blank spaces. Have students write previously taught, content-area vocabulary words randomly in any space on their cards. Then, have students take turns randomly pulling from a bag and reading the definition of a designated word. Have students cover or mark out each word as the definition is read. The first student to cover five words in a row, horizontally, vertically, or diagonally, shouts out, “Bingo!” However, to win, the student must orally define the five words that comprise the Bingo. If the student cannot supply the definitions, play continues until a subsequent student wins.

**Adaptation:** Have students randomly write answers to math problems in the 25 blank spaces. Have students randomly pull and read math problems from the bag as students cover the correct answers.

**WHO:** Elementary/Middle/High

**WHEN:** During a lesson

**CONTENT AREA(S):** Language Arts/History

- Have students play the Who Am I? game by providing written clues regarding a famous literary or historical figure already studied. Have students take turns standing and reading their clues aloud as class members try to guess the identity of the figure. Any student who is the first to guess wins a point. If no one can identify the figure, then the student providing the clues gets the point.

**WHO:** Elementary/Middle/High

**WHEN:** After a lesson

**CONTENT AREA(S):** Cross-curricular

- Have students compete in pairs and take turns being the first to get their partners to guess a designated vocabulary word by providing them with a one-word synonym or clue for the word. No gestures are allowed. Bring two pairs of students to the front of the class, and show one person in each pair the same word. One pair begins. If the word is missed, the play reverts to the other pair. The point value starts at 10 and decreases by one each time the word is not guessed. If the word has not been guessed by the time the point value gets to five, tell the word. Bring up two new pairs of students, and a new word is given. This game is patterned after the television game show *Password*.

**WHO:** Elementary/Middle/High

**WHEN:** During a lesson

**CONTENT AREA(S):** Cross-curricular

- During a class discussion, when a question is asked, toss a Nerf or any other soft ball to the student who is to respond. The student gets one point for catching the ball and two points for answering the question correctly. If the student is correct, they can randomly pick the student to answer the next question and randomly toss the ball to that student. If the student answers incorrectly, they must throw the ball back to you so that you can select the next student. Be sure to ask the entire class the question before choosing someone to catch the ball and answer the question.

**WHO:** Elementary/Middle/High

**WHEN:** After a lesson

**CONTENT AREA(S):** Cross-curricular

- Following a unit of study and before a test, have students work in heterogeneous groups to write 10 questions regarding the content at varying difficulty levels with four possible answer choices. Each question is assigned a monetary difficulty level in \$100 increments, ranging from \$100 to \$1,000. Have them also write three additional difficult questions worth \$5,000, \$25,000, and \$100,000, respectively. Have student groups compete to earn money for their team by answering another team's questions. This game is adapted from the television game show *Who Wants to Be a Millionaire?*

**WHO:** Elementary/Middle/High

**WHEN:** During a lesson

**CONTENT AREA(S):** Cross-curricular

- Encourage students to review appropriate content-area vocabulary by playing *Pictionary*. Divide the class into two heterogeneous teams. Students from each team take turns coming to the front of the room, pulling a vocabulary word from a box, and drawing a picture on the SMART board that will get their team members to say the word before time is called. No words may be spoken. If the team succeeds in guessing the word within a specific time limit (such as 15 seconds), the team gets one point. The winner is the team with the most points when all words have been used.

**WHO:** Elementary/Middle/High

**WHEN:** During a lesson

**CONTENT AREA(S):** Cross-curricular

- Download *Game Show TV Theme Music* on YouTube or Spotify so you have the music accompanying many of the games you will play with your class. Themes from the following game shows are included:

*Wheel of Fortune, Jeopardy, Password, Family Feud, The Price Is Right, and many more.*

**WHO:** Elementary/Middle

**WHEN:** During a lesson

**CONTENT AREA(S):** Cross-curricular

- Consult the series *Engage the Brain Games* for a plethora of additional game ideas across the curriculum. Books for kindergarten through Grade 5 are cross-curricula, including games in the content areas of language arts, math, science, social studies, music, and physical education. There is a separate book in language arts, mathematics, science, and social studies for Grades 6 through 8. Consult the Corwin website at [www.corwin.com](http://www.corwin.com) for information on this series.

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## Action Plan for Incorporating GAMES

### WHAT ARE MY PLANS FOR INCORPORATING MORE *GAMES* INTO MY LESSONS TO ACCELERATE LEARNING?

RECOMMENDATIONS	ALREADY DOING	PLANNING TO DO
Have students construct an original game board with content-related question cards.		
Have math students play the game SWITCH to identify the factors of a number.		
Have students match content-area vocabulary words to their definitions.		
Have math students practice adding facts by adding the numbers on two cards together.		
Play Charades by having students act out the definition of a vocabulary word.		
Play <i>Jeopardy</i> by having students provide content-area questions to answers on the gameboard.		
Play <i>Wheel of Fortune</i> by having students guess the letters in a content-area word.		
Play the Loop game by having one student answer another's question.		
Play BINGO by matching words with their definitions.		
Play Who Am I? by identifying a character based on clues provided.		
Play <i>Password</i> by getting students to guess a content-area word based on a one-word clue.		
Toss a soft ball as students respond to questions.		
Have students play <i>Who Wants to Be a Millionaire?</i> by writing and answering questions at varying difficulty levels.		
Have students guess vocabulary words based on pictures drawn by their peers.		
Download <i>Game Show TV Theme Music</i> to provide music to accompany the games played.		
Consult the <i>Engage the Brain Games</i> series for additional ideas.		
Goals and Notes:		



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