

ENGAGEMENT

Using Academic Games

THE **MARZANO COMPENDIUM** OF
INSTRUCTIONAL STRATEGIES



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INTRODUCTION

In 2007, Dr. Robert J. Marzano published *The Art and Science of Teaching: A Comprehensive Framework for Effective Instruction*. The framework, composed of three lesson segments, ten design questions, and forty-one elements, was based on research showing that teacher quality is one of the strongest influences on student achievement—that is, an effective teacher can positively and significantly impact student learning. As such, *The Art and Science of Teaching* sought to identify specific action steps teachers could take to improve their effectiveness.

In 2015, Dr. Marzano updated *The Art and Science of Teaching* framework to reflect new insights and feedback. The Marzano Compendium of Instructional Strategies is based on this updated model, presenting forty-three elements of effective teaching in ten categories. Each folio in the series addresses one element and includes strategies, examples, and reproducible resources. The Compendium and its folios are designed to help teachers increase their effectiveness by focusing on professional growth. To that end, each folio includes a scoring scale teachers can use to determine their proficiency with the element, as well as numerous strategies that teachers can use to enact the element in their classrooms. Indeed, the bulk of each folio consists of these strategies and reproducibles for implementing and monitoring them, making the Compendium a practical, actionable resource for teachers, instructional coaches, teacher mentors, and administrators.

USING ACADEMIC GAMES

Teachers who master this element use academic games and inconsequential competition to maintain student engagement. Research has shown that games and puzzles are associated with increased attention. The principle of *clozentropy* postulates that games and puzzles hold students' attention because of an innate human desire to fill in missing information. Another theory states that humans pay attention to games and puzzles because we seek to decrease the discrepancy between what we predict will happen and what actually happens. Games and inconsequential competition also create mild pressure, which increases attention and engagement. An essential aspect of this element is that games and other competitions be kept light and inconsequential. Students should never feel bad if they or their team lose a game, and the outcomes of games should never have an impact on students' grades or standing within the class.

Monitoring This Element

There are specific student responses that indicate this element is being effectively implemented. Before trying strategies for the element in the classroom, it is important that the teacher knows how to identify the types of student behaviors that indicate the strategy is producing the desired effects. General behaviors a teacher might look for include the following.

- Students engage in the games with some enthusiasm.
- When asked, students can explain how the games keep their interest and help them learn or remember content.

Desired behaviors such as these are listed for each strategy in this element.

Teachers often wonder how their mastery of specific strategies relates to their mastery of the element as a whole. Successful execution of an element does not depend on the use of every strategy within that element. Rather, multiple strategies are presented within each element to provide teachers with diverse options. Each strategy can be an effective means of implementing the goals of the element. If teachers attain success using a particular strategy, it is not always necessary to master the rest of the strategies within the same element. If a particular strategy proves difficult or ineffective, however, teachers are encouraged to experiment with various strategies to find the method that works best for them.

Scoring Scale

The following scoring scale can help teachers assess and monitor their progress with this element. The scale has five levels, from Not Using (0) to Innovating (4). A teacher at the Not Using (0) level is unaware of the strategies and behaviors associated with the element or is simply not using any of the strategies. At the Beginning (1) level, a teacher attempts to address the element by trying specific strategies, but does so in an incomplete or incorrect way. When a teacher reaches the Developing (2) level, he or she implements strategies for the element correctly and completely, but does not monitor their effects. At the Applying (3) level, the teacher implements strategies for the element and monitors their effectiveness with his or her students. Finally, a teacher at the Innovating (4) level is fluent with strategies for the element and can adapt them to unique student needs and situations, creating new strategies for the element as necessary.

Scale for Using Academic Games

4	3	2	1	0
Innovating	Applying	Developing	Beginning	Not Using
I adapt behaviors and create new strategies for unique student needs and situations.	I use academic games and inconsequential competition to maintain student engagement, and I monitor the extent to which students focus on the academic content of the game.	I use academic games and inconsequential competition to maintain student engagement, but I do not monitor the effect on students.	I use the strategies and behaviors associated with this element incorrectly or with parts missing.	I am unaware of strategies and behaviors associated with this element.

The following examples describe what each level of the scale might look like in the classroom.

Not Using (0): A teacher worries that his students will be too competitive and so avoids using academic games altogether.

Beginning (1): A teacher uses academic games to help her students review content before an assessment, but she often awards bonus points to the winners, which are used to raise their grades.

Developing (2): A teacher uses academic games with the intent of increasing student engagement and helping students practice and deepen their knowledge, but she does not try to monitor these outcomes.

Applying (3): A teacher has students play games with the content as a way to help them maintain attention during class and retain the content better. He notices that he has to stop lessons to re-engage students less often, and assessment results indicate that the games are helping students remember the content as well.

Innovating (4): A teacher uses inconsequential competition and monitors student outcomes for increased engagement. She notices that, after several iterations of the same game, some students seem to lose interest. To combat this, she finds new game structures online and rotates through the options to create variety.

STRATEGIES

Each of the following strategies describes specific actions that teachers can take to enact this element in their classrooms. Strategies can be used individually or in combination with each other. Each strategy includes a description, a list of teacher actions, a list of desired student responses, and suggestions for adapting the strategy to provide extra support or extensions. Extra support and extensions relate directly to the Innovating (4) level of the scale. Extra support involves steps teachers can take to ensure they are implementing the strategy effectively for all students, including English learners, special education students, students from low socioeconomic backgrounds, and reluctant learners. Extensions are ways that teachers can adapt the strategy for advanced students. In addition, some strategies include technology tips that detail ways teachers can use classroom technology to implement or enhance the strategy. Finally, each strategy includes further information, practical examples, or a reproducible designed to aid teachers' implementation of the strategy.

What is the Question?

The teacher creates and displays a matrix with content-based categories across the top and point values (generally 100, 200, 300, 400, and 500) down the side. This can be done using a bulletin board, an overhead transparency, or PowerPoint. The teacher also creates clues (words, pictures, or a combination of the two) and puts one in each matrix cell, with more difficult clues corresponding to higher point values.

A student or team selects a category and point value. The teacher reveals the corresponding clue. The student answering must state a question for which the clue would be the answer. The teacher decides if a student's question represents an adequate understanding of the concept or term. If the student answers correctly, his or her team gets the points for the question and the same student or team picks the next category and level. If the student answers incorrectly, a student on the other team gets a chance to answer. If that student answers correctly, that team gets the points and the next pick; if incorrect, no points are awarded and the original team picks next.

Teacher Actions

- Creating a matrix with content-based categories and point values
- Creating clues for each matrix cell with more difficult clues for higher point values
- Explaining the game What Is the Question? to students
- Facilitating students' game play of What Is the Question?

Desired Student Responses

- Following the rules and procedures for What Is the Question?
- Answering clues correctly during What Is the Question?
- Exhibiting increased engagement during What Is the Question?
- Treating other students respectfully during What Is the Question?

Extra Support

- Incorporating pictures and media (like video and audio clips) into clues

Extension

- Asking students to design clues for What Is the Question? and using student-designed clues with other classes, or making student designers ineligible to respond to their own clues

Technology Tips

- Use presentation software or an interactive whiteboard to create a dynamic game board.
- Divide the class into teams and select individual students to answer clues with random group and name generators.

Example What is the Question? Board

	Angles	The Coordinate Plane	Polygons and Area	Triangle Relationships	Quadrilaterals
100	These types of angles add up to 90° , forming a right angle.	?	?	?	?
200	?	?	?	?	?
300	?	?	?	?	?
400	?	?	?	?	?
500	?	?	?	?	?

Name That Category

The teacher creates a game board that looks like a pyramid divided into sections with various categories and point values. The teacher organizes students into teams with one clue giver and one or more guessers. Teams sit so that clue givers face the game board and guessers face the opposite direction. The teacher reveals one category on the game board (the rest remain covered). The clue giver must list words that fit in that category until teammates correctly identify the category name. As soon as one team has correctly identified the first category, the teacher reveals the next one.

Teacher Actions

- Creating a pyramid-shaped game board with categories and point values
- Explaining the game Name That Category to students
- Facilitating students' game play of Name That Category

Desired Student Responses

- Following the rules and procedures for Name That Category
- Listing multiple words for each category when acting as the clue giver
- Correctly identifying categories when acting as the guesser
- Exhibiting increased engagement during Name That Category
- Treating other students respectfully during Name That Category

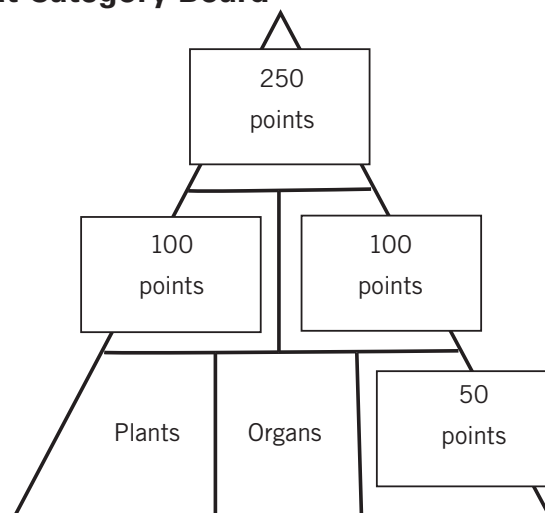
Extra Support

- Accompanying category names with pictures that will help students remember important concepts or terms associated with that category

Extension

- Limiting students to a specific number of words that they can say while trying to get their teammates to guess a category (for example, only five terms)

Example Name That Category Board



Talk a Mile a Minute

The teacher prepares a set of cards, each with a category and list of items that fit in that category (for example, the shapes category card might have square, circle, rectangle, triangle, right triangle, oval, and diamond listed as words). The teacher organizes students into teams and each team designates one team member as the talker. The teacher gives a card to each team. The talker tries to get his or her team to say each of the words by quickly describing them. The talker cannot use any of the words in the category title or any rhyming words. The talker keeps talking until the team members identify all of the terms on the card. If team members are having trouble with a particular term, the talker can skip it and come back to it later. The first few teams to identify all the terms receive points. Afterward, the teacher might lead a discussion of which words were hard to guess and how the successful talkers represented those words.

Teacher Actions

- Creating a set of cards with categories and lists of items for each category
- Explaining the game Talk a Mile a Minute to students
- Facilitating students' game play of Talk a Mile a Minute

Desired Student Responses

- Following the rules and procedures for Talk a Mile a Minute
- Accurately describing terms when acting as the talker
- Correctly identifying terms when acting as a guesser
- Exhibiting increased engagement during Talk a Mile a Minute
- Treating other students respectfully during Talk a Mile a Minute

Extra Support

- Adding pictures to lists of words that fit in a category

Extension

- Adding a few difficult bonus words to the bottom of each card used in Talk a Mile a Minute; if a team guesses all the regular words, they can try to get bonus points by guessing the extra words

Example Talk a Mile a Minute Card

Reptiles	
Sea turtle	Boa constrictor
Tortoise	Chameleon
Crocodile	Gecko
Alligator	Gila monster
Rattlesnake	

A student might help his or her teammate guess the term *boa constrictor* by saying “This animal has scales, does not have legs, and kills its prey by squeezing it.”

Classroom Feud

The teacher constructs at least one question for every student in the class. Questions can be multiple choice, fill-in-the-blank, or short answer. The teacher organizes students into teams, and they take turns being the responder for their team. The teacher presents a question to a responder who has fifteen seconds to confer with team members and identify the team's answer. The responder tells the team's answer to the teacher. If correct, that team receives a point. If incorrect, the opposing team has the opportunity to answer. That team's most recent responder acts as responder for his or her group and has fifteen seconds to confer and answer the question. If correct, that team receives a point. If incorrect, no point is awarded. When every student on both teams has functioned as the responder, the team with the most points wins.

Teacher Actions

- Creating at least one question for each student in the class
- Explaining the game Classroom Feud to students
- Facilitating students' game play of Classroom Feud

Desired Student Responses

- Following the rules and procedures for Classroom Feud
- Answering questions correctly during Classroom Feud
- Exhibiting increased engagement during Classroom Feud
- Treating other students respectfully during Classroom Feud

Extra Support

- Incorporating pictures and media (like video and audio clips) into questions

Extension

- Asking students to design questions for Classroom Feud and using student-designed questions with other classes, or making student designers ineligible to answer their own questions

Technology Tips

- Play Classroom Feud using clickers with text input or polling software on students' mobile devices. Teams submit their answers using polling devices, and whoever answers the fastest earns points for his or her team.

Classroom Feud Procedure

1. The class divides into two teams.
2. Each team selects one member to be the responder first. Alternatively, the teacher can select the responders. The role of responder rotates after each round.
3. The teacher asks Team A the first question. Team A has fifteen seconds to discuss the question within the team.
4. At the end of fifteen seconds, the responder for Team A presents the team's answer.
 - 5a. If Team A is correct, they receive a point.
 - 5b. If Team A is incorrect, Team B has a chance to answer the question. Team B has fifteen seconds to discuss the question and give their answer through their responder. If Team B is correct, they receive a point. If they are incorrect, no points are awarded for that question.
6. The teacher asks Team B the second question. They take fifteen seconds to discuss and then the responder gives their answer. If they are correct, they receive a point. If they are incorrect, Team A gets a chance to answer; Team A's original responder remains the responder for this question. If Team A is correct, they receive a point. If they are incorrect, no points are awarded.
7. After each team has been asked a question, the round is over. Teams select a new responder and the next round begins.

Which One Doesn't Belong?

The teacher creates word groups containing three terms that are similar and one term that is different. Students work independently or in groups. The teacher displays one word group at a time. Students have a set amount of time to pick out the term that does not belong and write down why they think that term is different. This game can be played formally (keeping track of points) or informally (the teacher pauses during a lesson to offer four words to the class and ask them to identify which one doesn't belong).

Teacher Actions

- Creating word groups with three similar terms and one different term
- Explaining the game Which One Doesn't Belong? to students
- Playing Which One Doesn't Belong? informally within presentations

Desired Student Responses

- Following the rules and procedures for Which One Doesn't Belong?
- Correctly identifying items that do not belong in a group
- Exhibiting increased engagement during Which One Doesn't Belong?
- Treating other students respectfully during Which One Doesn't Belong?

Extra Support

- Accompanying words in word groups with pictures

Extension

- Creating groups of five or six words where two don't belong or groups of seven words where three don't belong

Example Which One Doesn't Belong? Word Sets

In these examples, the word that does not belong is italicized. The explanation of why it is considered different appears in parentheses.

- big, blue, sad, *quickly* (The first three words are adjectives, while the last is an adverb)
- snowflake, *chapter*, barnyard, everyday (All are compound words except one)
- assonance, consonance, alliteration, *allegory* (The first three are poetic techniques related to sound)
- centimeter, inch, *gram*, meter (Three measure length while the other measures weight)
- *toys*, food, water, shelter (Toys are not a requirement for life)
- electrical energy, *chemical energy*, sound, thermal energy (All are types of kinetic energy except chemical energy, which is potential)
- dog, horse, *lion*, sheep (Three are domestic animals, one is wild)
- legislative, executive, *autocratic*, judicial (Three describe the branches of U.S. government, but autocratic does not)

Inconsequential Competition

The teacher uses any type of inconsequential competition (including academic games like those previously described) to increase student engagement. The teacher should clearly delineate roles in student groups and change group membership systematically (for example, after each unit) so that students with a high degree of content mastery are regularly paired with those who have lower content mastery. In this way, all students can experience winning and losing. The teacher might consider giving a tangible reward to the top two or more teams at the end of a unit. This strategy can be used to review vocabulary terms, spelling words, literary terms and elements, historical facts, and dates. It can also be used to highlight different perspectives and points of view, key content, competing theories and hypotheses, and different approaches to mathematical problem solving.

Teacher Actions

- Clearly delineating students' roles on their teams
- Changing group membership systematically so students get a chance to be on a team with most of the students in the class
- Considering giving tangible rewards to top teams

Desired Student Responses

- Explaining what their roles are on their team
- Working effectively with a variety of classmates as teams change
- Explaining why the teacher gives tangible rewards to the top teams
- Expressing satisfaction when they win
- Not being concerned when they lose

Extra Support

- Tracking which students have been on a winning team over the course of the year and trying to arrange teams so that all students have at least one experience on a winning team

Extension

- Asking students to create their own academic games based on the content and playing them with the whole class.

Technology Tips

- Use interactive multimedia tools such as polling devices or interactive whiteboards to enhance inconsequential competition.

Planning for Inconsequential Competition

Class: _____

Lesson or unit topic: _____

Key terms and concepts to create games around:

Structured games I will use with this content:

Opportunities for impromptu games during this lesson or unit:

Turning Questions Into Games

The teacher turns questions into impromptu games by forming students into four equally sized groups before asking a series of questions during a lesson. Each group can name itself, if desired. After the teacher asks a question, group members talk together for one minute and record their answer on a response card. On the teacher's signal, each group holds up its answer. The teacher keeps a record of the groups that gave the correct answer. After the series of questions, the teacher acknowledges the team with the highest point total.

Teacher Actions

- Organizing students into equal-sized groups before asking a series of questions
- Providing teams with response cards
- Keeping track of teams' points and acknowledging high-scoring teams

Desired Student Responses

- Correctly responding to teacher questions
- Exhibiting increased engagement during impromptu games
- Treating other students respectfully during impromptu games

Extra Support

- Explicitly teaching students how to explain why they think their answer is correct and how to resolve disagreements if their whole team doesn't agree on the same answer

Extension

- Asking students to keep a list of questions they have during a lesson and use them for an impromptu game at the end of the lesson

Tracking Sheet for Impromptu Games

Tally the points each team receives for correct answers in the boxes below.

Team 1: _____ (name)	Team 2: _____ (name)
Team 3: _____ (name)	Team 4: _____ (name)

Students on Team 1:

Students on Team 2:

Students on Team 3:

Students on Team 4:

Vocabulary Review Games

The teacher uses games to review vocabulary with students. Games are an important element to a vocabulary program, as they help students solidify and apply their understanding of terms. Many of the games described in this folio can be used for the purpose of vocabulary review. One resource for further game structures is the book *Vocabulary Games for the Classroom* by Lindsay Carleton and Robert J. Marzano (2010), which contains thirteen games for vocabulary development. Teachers can also find many vocabulary games online.

Teacher Actions

- Explaining the purpose of playing games with vocabulary terms and concepts to students
- Asking students to play games with vocabulary terms and concepts

Desired Student Responses

- Correctly responding to vocabulary questions
- Explaining why the teacher asks the class to play games involving vocabulary terms and concepts
- Following the rules and procedures for vocabulary review games

Extra Support

- Accompanying words in vocabulary games with pictures

Extension

- Asking students to invent their own vocabulary review games

Using Academic Games

Sample Vocabulary Games

The following games appear in *Vocabulary Games for the Classroom*.

Game	Description
Word Harvest	A relay game for lower elementary grade levels in which students race to “harvest” and categorize vocabulary terms from a word wall
Name It!	A relay game for lower elementary grade levels in which students choose pictures from a bucket and try to describe them in one word
Puzzle Stories	A game for upper elementary grade levels in which students rush to assemble puzzles and write narratives based on the revealed image
Two of Kind	A Memory-inspired game for lower and upper elementary grade levels in which students match homonyms (for example, flower and flour)
Opposites Attract	A Memory-inspired game for lower and upper elementary grade levels in which students match antonyms (for example, multiply and divide)
Magic Letter, Magic Word	A game for lower and upper elementary grade levels in which students complete a fill-in-the-blank clue using the first letter of the word as a hint
Definition, Shmefinition	A Balderdash-inspired game for upper elementary through high school grade levels in which students create dictionary definitions for unknown terms and guess which definition is correct
Which One Doesn't Belong?	A Sesame Street–inspired game for lower elementary through high school grade levels in which students select the outlier from a group of items
Who Am I?	A twenty questions game for upper elementary through high school grade levels in which students are assigned identities of famous people (for example, historical figures, authors, scientists, and so on) and need to ask yes-or-no questions of classmates to guess who they are
Where Am I?	A game for lower and upper elementary grade levels in which students use step-by-step verbal instructions to direct one another from point A to point B on a map
Create a Category	A classification game for upper elementary through high school grade levels in which students categorize three or more terms in as many ways as they can think of

REPRODUCIBLES

Teachers can use the following reproducibles to monitor their implementation of this element. The reproducible titled Tracking Progress Over Time helps teachers set goals related to their proficiency with this element and track their progress toward these goals over the course of a unit, semester, or year. Tracking Teacher Actions and Tracking Student Responses allow observers in classrooms to monitor specific teacher and student behavior related to this element. Teachers themselves can also use the Tracking Student Responses reproducible to document instances of student behaviors during class. The Strategy Reflection Log provides teachers a space to write down their thoughts and reflect on the implementation process for specific strategies related to this element. Finally, this section provides both a student survey and a teacher survey, the results of which provide feedback about teachers' proficiency with this element.

Tracking Progress Over Time

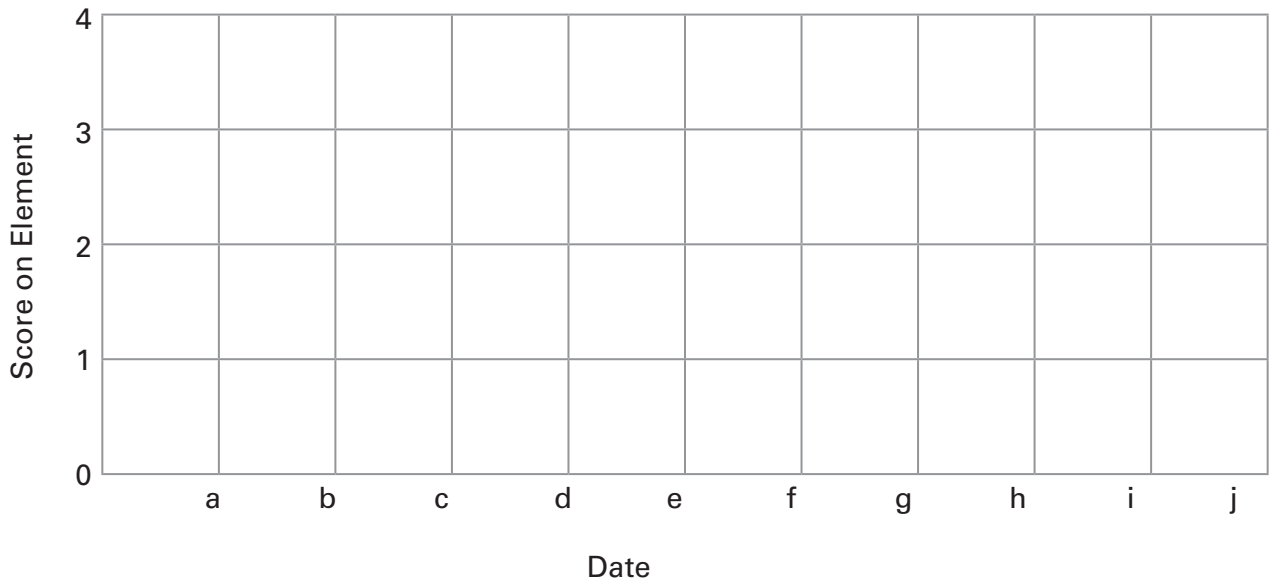
Use this worksheet to set a goal for your use of this element, make a plan for increasing your mastery, and chart your progress toward your goal.

Element: _____

Initial Score: _____

Goal Score: _____ by _____ (date)

Specific things I am going to do to improve: _____



a. _____

f. _____

b. _____

g. _____

c. _____

h. _____

d. _____

i. _____

e. _____

j. _____

Tracking Teacher Actions

During an observation, the observer can use this form to record the teacher's usage of strategies related to the element of using academic games.

Observation Date and Time: _____ Length of Observation: _____

Check Strategies You Intend to Use	Strategies	Description of What Was Observed
	What is the Question?	
	Name That Category	
	Talk a Mile a Minute	
	Classroom Feud	
	Which One Doesn't Belong?	
	Inconsequential Competition	
	Turning Questions Into Games	
	Vocabulary Review Games	
	Other:	
	Other:	

Tracking Student Responses

A teacher or observer can use this worksheet to record instances of student behavior to inform planning and implementation of strategies associated with using academic games. Any item followed by an asterisk is an example of undesirable behavior related to the element; the teacher should look for a decrease in the number of instances of these items.

Observation Date and Time: _____ Length of Observation: _____

Behavior	Number of Instances
Following the rules of various games	
Appearing engaged during gameplay	
Working with other students during team games	
Treating classmates respectfully during games	
Becoming overly competitive*	
Other:	
Other:	

Strategy Reflection Log

Use this worksheet to select a strategy, set a goal, and reflect on your use of that strategy.

Element: _____

Strategy: _____

Goal: _____

Date	How did it go?

Student Survey for Using Academic Games

1. My teacher makes learning interesting and fun.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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2. My teacher uses games to review information or teach new material.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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3. When we play games or compete in class, it is in the spirit of fun.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
-------------------	----------	-------------------------------	-------	----------------

4. Games make me feel included and important to my teammates.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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5. When we play games in class, I feel excited and I want to win.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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6. Whether my team wins or loses a game, I always have fun.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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Teacher Survey for Using Academic Games

1. I use structured game formats, such as What is the Question? or Classroom Feud, with my students.

Often Sometimes Rarely Never I don't know

2. I incorporate impromptu, informal games into my lessons.

Often Sometimes Rarely Never I don't know

3. I ensure that competition in my classroom remains light and inconsequential.

Often Sometimes Rarely Never I don't know

4. I explicitly teach my students how to interact and compete respectfully.

Often Sometimes Rarely Never I don't know

5. My students are enthusiastic and engaged when we play games.

Often Sometimes Rarely Never I don't know

6. My students understand and remember content better when we play games.

Often Sometimes Rarely Never I don't know