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**Teacher Toolkit**

**Certification Content Specific Strategies**

**Triangle-Square-Circle**

This strategy promotes lesson reflection and encourages students to process information presented to them in a lesson. This strategy requires students to critically think about the information they just learned and break it down in their own way. It asks students to pick out important pieces of information and to question anything they don’t completely understand.

**How it works:**

**1. Instruct:** Guide students through the next part of the lesson, typically the closing activity when using this strategy. Instruct them to get out a piece of paper or hand one out.

**2. Triangle:** Have students draw a triangle and next to it write down three important points from the lesson they just learned about.

**3. Square:** Have students draw a square and right down anything that “squares” with their thinking, or anything they agree with.

**4. Circle:** Have students draw a circle and next to it write down anything that is still “circling” in their head, or questions they may have.

**5. Turn in:** Have students turn in paper as an exit ticket and review it to see if there is any material that needs to be retaught or discussed more.

**When to use:**

Triangle-Square-Circle can be used at any time during the lesson to check for understanding and get students to critically think about the material.

* As the focus activity to review from last class
* As the focus activity to use as a class discussion
* During the instructional delivery to comprehend what was just learned
* As the closing activity/exit ticket to use as a formative assessment
* Before reviewing for an assessment
* In cooperative learning groups to talk amongst each other and highlight key areas

**Variations:**

**1. Alternate triangle:** Instead of having the triangle be used to represent information that stood out to the students, it can instead be used as an area where students write down items that need more clarification.

**2. Alternate circle:** Instead of the circle being used to represent things students have questions about, it can be used to write down how the information is relevant and how it can be used in everyday lives.

**3. Input:** After students have filled out their exit ticket, allot some time at the end of class to have students share some of their ideas to spark conversation and maybe spark new ideas amongst students.

**Number Talk**

This strategy is a 10 to 15-minute whole group mental math activity where students find the answer to a math problem in their heads, then share aloud the strategies they used to find that answer. Strategies may differ and this gives students the opportunity to personalize their learning. It helps to develop quality student discourse in a whole class setting as students are encouraged to explain their thinking, justify their reasoning, and make sense of each other’s strategies.

**How it works:**

**1. Identify:** Start by identifying a mathematical concept that students will need to be successful in a particular unit. From this list, write a problem that students can tackle mentally and to which they might apply several different solving strategies.

**2. Anticipate and Record:** Anticipate the different strategies that students might apply to finding an answer to the question and choose a method of recording answers and strategies.

**3. Remind and Establish:** Remind students that this is a mental math exercise, and that everyone will have time to arrive at an answer silently before the discussion begins. Demonstrate any silent signals you want students to use to indicate when they are ready such as a thumbs up or a hand up.

**4. Share:** Examine the different answers students reached. Poll the class to determine if most students got a specific answer. Then, call on students to share strategies and record their solving processes.

**5. Closure:** Wrap up the number talk through a closure activity.

**When to use:**

Number Talk can be used whenever the teacher feels it is necessary.

* As the focus activity to review material from last class
* As a formative assessment when a new concept is introduced
* To activate prior knowledge
* As the closing activity to review material just learned
* During the guided practice to check for understanding from the instructional delivery
* When pointing to particular structures in numbers and expressions

**Variations:**

**1. Multiple problems:** Instead of posting just one problem for students to think about and solve, challenge them with 2 or 3.

**2. Turn and talk:** Once students have thought of their individualized ways to solve the problem, allow them to turn and talk to a neighbor to discuss their findings.

**3. Pair up:** Allow students to pair up and collectively think of different ways to solve the problem and then share to the class.

**Hot Potato**

This cooperative learning strategy turns a boring exercise of solving a problem into a fun and interactive activity with classmates. This activity is geared to activate learned and prior knowledge in a group setting. The goal is to take a complicated equation or problem and show all of the steps needed to solve by showing work and writing out the steps as well to show understanding.

**How it works:**

**1. Choose:** The teacher will choose a math problem related to the curriculum, such as an equation.

**2. Separate:** The teacher will separate the class into groups of 3-4.

**3. Pass out and explain:** The teacher will pass out the needed materials, in this case, 3-4 different colored pencils and a “Hot Potato” worksheet. The teacher will then explain the directions of taking turns and explaining each step within words as well.

**4. Take turns:** Students will take turns solving the equation/problem. Students must only do one step of solving the problem before passing it on to the next group member.

**5. Accountability:** The teacher will hold each group accountable for a group grade. The exercise is over once the entire group takes turns rotating the worksheet and solving the problem correctly.

**When to use:**

Hot Potato can be used at any time during the lesson cycle.

* As the focus activity to review material from last class
* As the focus activity to get students excited for class
* As the closing activity to review material learned
* During the guided practice to check for understanding and practice newly learned material
* During the instructional delivery to use as checkpoints of understanding
* As the independent practice to assess students’ knowledge just learned

**Variations:**

**1. Competition:** Use this exercise to spark excitement for class by making it a competition to see which group can solve the problem the fastest using the steps required.

**2. Time:** Timing students will allow the teacher to see how advanced students are at the material and which students struggle with it.

**3. Groups:** Every time this exercise is used, make sure to change up the groups based on different categories to allow students to work with different classmates.

**Flipped Classroom**

This learning strategy is a unique instructional approach in which direct instruction moves from the group learning space to the individual learning space. The classroom is now student-led. The resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter.

**How it works:**

**1.** **Plan:** Decide on which lesson in particular you want to flip. Outline the key learning outcomes and a lesson plan.

**2. Record:** Instead of teaching this lesson in-person, make a video. Make sure it contains all the key elements you’d mention in the classroom and that there is a strong teacher voice.

**3. Share:** Send the video to your students. Make it engaging and clear. Explain that the video’s content will be fully discussed and reviewed in class.

**4. Group:** Once in the classroom, an effective way to discuss the topic is to separate into groups where students are given a task to perform. Solve a problem, make up a problem, strategize a problem, etc.

**5. Regroup:** Get the class back together to share the individual group’s work with everyone. Ask questions using Bloom’s taxonomy and dive deep into conversation.

**When to use:**

A flipped classroom can be used whenever the teacher feels it is necessary.

* For the entire semester
* For when the teacher is going to be absent
* For a lesson once a week
* For a homework assignment
* For a test review

**Variations:**

**1. The Demonstration-Focused Flipped Classroom:**  In this model, the teacher uses [screen recording software](https://www.panopto.com/blog/screen-recording-software-what-should-you-look-for/) to demonstrate the activity in a way that allows students to follow along at their own pace.

**2. The Discussion-Oriented Flipped Classroom:** Teachers assign lecture videos, as well as any other video or reading related to the day’s subject. Class time is then devoted to discussion and exploration of the subject.

**3. The Faux-Flipped Classroom:**  This flipped classroom model has students watch a lecture video in class, giving them the opportunity to review materials at their own pace, with the teacher able to move from student to student to offer whatever individual support each learner needs.

**START Stations**

This learning strategy is perfect for any learner. Stations are great hands on activities that allow the students to be in control why the teacher facilitates learning. Teachers get to be creative with these stations and choose the material that benefits the students the most during that given time.

**How it works:**

**1. Solve:** The teacher chooses an activity for students to do. Typically, the “solve” station is material that never goes away, such as solving equations.

**2. Technology:** The teacher chooses a technology activity for students to do. This is self-paced and can be graded based on the teacher’s discretion. Some examples are Delta Math and Kahoot.

**3.** **Analyze:** The teacher chooses an activity for students to do. Typically, the “analyze” station is material that is current.

**4. Review:** The teacher chooses an activity that reviews students. It is suggested to use data from previous exams to select material. The lowest performing TEKS are recommended for this station.

**5. Teacher Table:** This can be a physical station that students rotate to or it can be used to resemble the teacher’s role during these stations, which is to

**6. Choose:** It is up to the teacher on which stations they want to take a grade on. Grading keeps kids accountable for their work and boosts their grade as well.

**When to use:**

START stations can be used whenever. In my experience, students love it after learning new material.

* At the end of a unit to review information
* To review before the STAAR test
* To review before a benchmark
* As a fun activity after learning new curriculum
* As guided practice before independent practice
* When needing some daily grades

**Variations:**

**1. Student choice:** Split the stations into 2 days and have students choose which ones they want to do each day.

**2. Options:** Have at least 2 activities at each station to give students options on which activity they want to complete.

**3. Partners:** Allow students to work in partners to promote cooperative learning. Instruct students to write both names on each activity.

**White Boards**

White boards create a hand-on learning environment for every student. It is a fun, interactive activity that can be used for various reasons. White boards allow the student to be in control of their own learning while being given the chance to showcase their work and be creative. These are great for any math class and can be used almost daily.

**How it works:**

**1. Select:** The teacher will provide a topic/problem/activity for students.

**2. Materials:** The teacher will then pass out all materials needed such as a white board, dry-erase markers, and an eraser.

**3. Directions:** The teacher will provide directions for the chosen activity.

**4. Implement:** The teacher and students will implement the chosen activity using white boards.

**When to use:**

White boards can be incorporated into any part of the lesson cycle.

* At the beginning of the year as an icebreaker for students
* At the end of a unit to review information
* As a test review
* For a jeopardy game
* For guided practice following the instructional delivery
* During cooperative learning activities

**Variations:**

**1. Groups:** Have students work in groups when using white boards. This creates competition as well as collaboration.

**2. Jeopardy game:** This is a fun competitive game used to help students review material before a test, quiz, etc. Groups can be selected based on numerous categories ultimately up to the teacher.

**3. White-Board wipeout:** This variation allows students to respond to a problem in writing and show their responses immediately for the teacher to see. It allows the teacher to quickly see the level of comprehension of concepts that were just taught.