Students fold multiple pieces of colored paper in half to create a book. Then, the teacher provides them with a verbal description of a linear equation. Students glue the description in their books. Show students how to translate this verbal description to a linear equation, to a table and to a graph. For each step, students find the matching task card and glue it in their books.

**STEP 2: FACILITATE COLLABORATIVE GROUP WORK**

Students work together to practice additional matching tasks. All students glue the same verbal description in their books. Then, they rotate their books to the right. The next student matches the linear equation to the verbal description. Books continue to rotate to the right throughout the process as the next student finds the matching table and finally the matching graph. Each student glues their piece into the book. Repeat the process for all descriptions.

**STEP 3: INCREASE THE RIGOR!**

After they are proficient at matching, students work with shoulder partners to evaluate linear equations and create their own verbal descriptions, tables and graphs from the equation.

FOR ACCESS TO THE COMPLETE LESSON PLAN AND PHOTOS OF STUDENT WORK, CLICK HERE.
Every year, there is a bicycle tour across Iowa. If you were on that bicycle tour, how far do you think you could ride in a day? How would your speed change from one part of the day to another? What conditions would affect your speed and the distance you could cover each day? Students respond to the prompts in writing and justify their answers.

THE CHALLENGE

How many jumping jacks can you do in two minutes? Just like the bicycle scenario, this challenge includes physical exertion over a period of time.

THE ACTIVITY

In small groups, students tackle the challenge with one student jumping while other group members take on various roles to collect data. After data collection, groups work together to represent the data in a variety of ways and discuss patterns and relationships that exist between variables.

TO WATCH A VIDEO OF THE CHALLENGE AND FIND RESOURCES TO FACILITATE THE JUMPING JACK CHALLENGE IN YOUR CLASSROOM, click here.
“Utilizing Common Instructional Framework (CIF) strategies has helped my students tremendously. When students are bored they simply won’t learn, and by using CIF strategies, it ensures the engagement level is high. . . I use lessons like this one to have the students work together to find the best strategies to solve different types of problems.”

**HOW TO:**

To facilitate the Poster Review lesson, Pineda prints word problems on posters using a poster-making machine and hangs them around his room. The word problems are aligned with targeted TEKs. Students are formed into small groups and each group begins at a different poster in the room. Students first attempt to solve the problem independently. After two and a half minutes of individual work, they have an additional one minute to discuss with their group, compare answers and ask questions of each other. Students rotate around the room until they have attempted every problem.
GRAFFITI WRITE
Ms. Cortez activates students’ prior knowledge using Graffiti Write, a Writing to Learn strategy, at the beginning of this lesson. Using shared writing space (butcher paper, whiteboards, poster paper, etc.) around the room, students circulate and describe what they already know about ordered pairs.

STAND UP, HANDS UP, PAIR UP
To quickly and efficiently group students, Ms. Cortez uses the Stand Up, Hands Up, Pair Up method. All students stand and put one hand in the air. As they partner up, they high-five and put their hands down. As students pair up, those who haven’t yet found a partner can easily and quickly see who else is left by scanning the room for hands still in the air. Once they partner up in this lesson, partners work together to plot ordered pairs on the coordinate plane using butcher paper.

GALLERY WALK
To begin the Gallery Walk, Ms. Cortez posts STAAR formatted coordinate plane questions around the classroom in different "stations" on classroom walls. At each posted question, a student team reviews the question and strategizes about how to solve it. Students rotate through the room in timed intervals until all posted questions are addressed.
Post math problems around the room. At the bottom of each poster, write the answer to a problem on a different poster. Students work in teams of two to solve the problems on one poster and record their answers in an answer document. Once the problem is solved, they use their answer to “hunt” for their next problem to solve. Their next problem is the one that has their previous answer at the bottom.

The Scavenger Hunt activity transforms everyday math practice into an opportunity that empowers students to take ownership of their ideas, learn to support their positions and explain their reasoning.

Want to know more about the Math Scavenger Hunt and how to implement it in your classroom? Click here!
Mr. Perez prepares students for life beyond high school by using Common Instructional Framework strategies to prepare for the SAT. Using stations, students solve problems and learn from one another through Collaborative Group Work.

“Since we [work] in groups, when you don’t understand a question, you could ask your group for help. . . this type of learning is a good way because you have more than one person (the teacher) to ask for help. This way helps a lot for the shy people because they don’t need to ask the teacher in front of the class. They could even ask their friends or teammates for help.”

“I like the fact that our teacher is preparing us for college and pushes us to continue learning and thriving.”

“Having lessons displayed throughout the room, instead of projecting them, makes our activities much more interactive. Not only this, but it also allows for the students to interact with one another instead of being secluded. The interaction with the students also builds a more friendly atmosphere. . . it makes students look forward to the work.”

CLICK HERE FOR RESOURCES FOR MR. PEREZ’S SAT STATIONS REVIEW.
With a slight twist on the I Do, We Do, You Do strategy, Mr. Ramirez and Ms. Ayma provide students an extra opportunity to work in teams for student-led learning. After modeling practice problems for students and then completing problems together as a whole class, the next step is You Do Together followed by You Do Alone. In the You Do Together portion of the lesson, students practice in small groups and learn from one another before attempting work on their own in the final step of the activity.

With the Do, Switch, Check strategy, Mr. Ramirez and Ms. Ayma, again, model student agency in the classroom. Students are responsible not only for their own work but also for checking the work of their peers. In this way, students are encouraged to learn from and with each other.

FOR PRACTICE WORKSHEETS YOU CAN USE WITH THESE STRATEGIES, CLICK HERE!
Students in Ms. Perez’s math class unravel murder mysteries by using a Clue Game to solve problems during a lesson on parallel and perpendicular lines.

**UTILIZING GROUP ROLES**

Students are assigned group roles. Each student is responsible for solving problems based on their specific role and for explaining their solution to their group members.

**WRITING IN MATH CLASS**

Students practice writing in math class by summarizing their solutions to each murder mystery. Each group role must contribute to the summary.

**SUBJECT**
MATH

**TOPIC**
PARALLEL AND PERPENDICULAR LINES

**CIF STRATEGIES**
COLLABORATIVE GROUP WORK AND WRITING TO LEARN
NUMBERED HEADS TOGETHER

Each student in a group is given a number. Students in the group work together to solve practice problems. After each problem, Mr. Garcia randomly calls out a number, and the student assigned that number shares their group’s response with the class. By numbering and calling on students in this way, Garcia ensures that all students in the group are responsible for other members of the group. They do not have a designated leader or reporter who will share their answer with the class, so the group must ensure that everyone in the group can share and explain the group’s answer, if their number is called.

ROLE ROUND ROBIN

Create and assign roles based on specific learning standards. Students then trade roles throughout the lesson. For example, in a lesson about equivalent ratios and rates, during which students must explain when it is better to use a fraction, a decimal or a percent, students are assigned 4 different roles. Student 1 draws a bar diagram, student 2 writes a proportion, student 3 uses the bar diagram and the proportion to determine the solution to the exercise and finally student 4 checks to ensure that each answer is reasonable and valid. After completing one problem, students rotate roles.
To make review engaging and to provide opportunities for students to learn from one another, Ms. Camarillo uses a dice game. To play the game, students work in pairs with a special game board and a set of dice to guide their game.

THE GAME

Based on the game boards, each student will solve a different problem; however, the solutions to their individual problems during each roll should be the same. If partners do not come to the same answer for their individual problems, students know they have made a mistake. Working together, they review their work, identify mistakes and make corrections.

THE IMPACT

Using the game and game board allows students to take responsibility for their learning and learn from each other.

CLICK HERE FOR INSTRUCTIONS AND A SAMPLE BOARD.
"My friend called me last week and offered to give me some pieces of wood. He told me that the pieces measure 3ft, 4ft, 5ft, 6ft and 11ft. I told him that I only need three pieces since I am making a triangular garden. I need to let him know if I want the pieces and which ones I want before he offers them to another friend. My problem is that I don’t want to have to cut any of the pieces because I don’t own a saw. Can you help me figure out which three pieces will form a triangular border for my new garden?"

**THE ACTIVITY**

Students manipulate straws of various lengths to create triangles. They discuss their findings to determine if any three lengths can be used to make a triangle and create a rule to reflect their thinking.

**THE IMPACT**

Through collaborative group work and an inquiry approach, students take ownership of their own learning and persist in discussing mathematical principles. They learn from one another and support one another in taking control of their own learning.
Mr. Robles uses shoulder partners to provide opportunities for students to explore the lesson on their own and to support students in learning from one another. To ensure that students are partnered intentionally, Mr. Robles utilizes grades on weekly assessments to pair, and re-pair, students. In this lesson, students work with their shoulder partners to learn about proportional relationships and the variety of ways they can be represented.

To further allow students to learn from one another, pairs who have successfully completed the problem and been checked by Mr. Robles become additional teachers in the classroom. These students are able to move about the classroom to help other pairs.

CLICK HERE FOR A LESSON PLAN AND OTHER MATERIALS.
Place students in small groups to work on multiple-choice problems together. Provide them with A-B-C-D cards. Students complete the problems individually, and then as a group, they talk about mistakes and misconceptions and the correct solution. They use their cards to share their final answer with the class.

“A-B-C-D CARDS

If it is a worksheet, students are off-task. However, the A-B-C-D cards allow students to have a purpose and complete their work.”

RALLY COACH

Students work in pairs to solve problems. One student is the solver, while the other is the coach. The student solving the problem must explain their steps aloud as they work. If the solver runs into challenge, the coach asks questions to support the solver’s thinking.

“Communication is key, and it allows students to go through the steps. This strategy aids them in communicating and using academic terminology.”

“I have learned how to use strategies for operations and solving equations in Mrs. Silva’s class. Working in pairs and groups has allowed us to communicate with each other and share different ways of solving problems. I have grown a lot in Mrs. Silva’s class because I feel like I can talk and share ideas with others.” – J.L., student
Ms. Zamora uses Inner and Outer Circles for vocabulary review. Student draw a number – 1 or 2 – as they enter class. Then, students sit in a circle – 1’s on the inside and 2’s on the outside. 1’s describe the vocabulary concept, and 2’s guess the word. Circles rotate in opposite directions after each round.

**Math Jenga**

To make review fun and engaging, Ms. Zamora uses JENGA blocks. Each block is coded with a color, and each color is associated with a specific type of review problem. When students take their turn, the color on the block they pull directs the group to the specific problem they need to solve.

**Frayer Model for Math**

To help students organize their work on math problems, Ms. Zamora has modified the Frayer vocabulary model. Students use the graphic organizer to ensure they not only solve the problem, but also that they understand the problem, plan out their method of attack and check their work.

[CLICK HERE](#) FOR THE LESSON PLAN AND SAMPLE FRAYER MODEL.
In small groups, students create and collect their own set of ordered pairs by building and measuring the heights of several stacks of identical objects such as boxes, blocks, pennies, books, storage containers and bottle caps. Students count and record number of items in a stack, along with height in inches or centimeters. The ratio of count-to-height is constant, so the height will vary directly with the count. Students utilize their data to solve problems as a team.

CLASSROOM TALK

After working in teams, students solve their own problems during a “Your Turn” activity. After first working independently, students have one minute to discuss their answer with a partner.

WRITING TO LEARN

Ms. Torres utilizes exit tickets to engage students in writing about math. For this lesson, exit tickets asked students to respond in writing to the following question: “How can you solve problems involving direct variation?

CLICK HERE TO ACCESS THIS LESSON PLAN.