

INTRODUCTION TO ACTIVITY ROUTINES

Activity Routines are recurring features in *MathLinks*, designed to engage students in problem-solving and practice. Activity Routines are accessible to a wide range of learners and learning styles.

- Locations of Activity Routines in grade level units can be found in Program Information → Features to Engage Students → Activity Routines.
- A video with more in-depth information about the routines can be found on the Teacher Portal → General Resources → Getting Started Videos → Activity Routines.
- Detailed instructions for each Activity Routine, along with introductory sample activities, can be found on the Teacher Portal → General Resources → Activity Routines. We recommend that teachers use these samples to establish classroom norms and procedures prior to using these activities in the units.
- Routines that are especially appropriate for different student needs (e.g. English learners, struggling learners, enrichment) can be found in the Teacher Edition Unit Planning Information → Planning for Different Users.

This chart shows the locations and purposes of the routines throughout the *MathLinks* courses.

Activity Routine	Grades			Games/Puzzles for Practice	Formative Assessment	Discussion	Review	Where they live
	6	7	8					
Big Square (or Triangle) Puzzles	x	x	x	x			x	Some units
Four in a Row	x	x	x	x			x	Some units
Match and Compare Sorts	x	x	x		x	x	x	Some units
Math Talks	x	x	x			x		All units
Open Middle Problems	x	x	x	x		x	x	Some units
Poster Problems	x	x	x		x	x	x	All units
Why Doesn't It Belong	x	x	x			x	x	Some units
The <i>MathLinks</i> Rubric*	x	x	x		x	x		Most units
Computational Fluency Challenge	x				x		x	All units
Math Path to Fluency		x		x			x	All units
Alge-Grid: What's the <i>a</i> ?			x	x		x	x	Some units
READY-X			x	x		x	x	Some units

*Also Summative Assessment

MORE ABOUT EACH ACTIVITY ROUTINE

Big Square Puzzles are located in the Reproducible sections for some *MathLinks* Student Packets and also in some Unit Resource sections (Essential Skills and Nonroutine Problems). Students practice skills and talk about solution strategies in a safe environment while solving the puzzle.

Four in a Row games provide skills practice. The object is to get four spaces across, down, or diagonally. Players earn spaces by completing computation problems. Four in a Row games appear in Packet Resources (Essential Skills and Nonroutine Problems). This practice in a game format helps students attain skills so that problem-solving is not derailed by lack of fluency.

Match and Compare Sorts challenge students to make connections among vocabulary in multiple ways through partner work and discussions. They are located in multiple locations in *MathLinks*. These card sorts encourage student engagement and discussion, develop critical thinking skills about compare-contrast situations, and connect concepts to vocabulary words and phrases.

Math Talks refer to a collection of prompts and visuals used to elicit a variety of student thinking and problem-solving strategies during whole-class discussion. The Math Talks included are categorized as Data Talks, Number Talks, Picture Talks, Graph Talks, and Dot Talks. The sharing process helps to create an environment of acceptance of others' ideas, and helps students see mathematics from a variety of perspectives. They are located on the Portal under Unit Resources.

Open Middle Problems¹ typically include (1) a “closed beginning,” meaning that each problem starts with a particular prompt and structure, (2) a “closed end,” meaning that each problem ends with a correct answer or set of equally correct answers, and (3) an “open middle,” meaning that there are multiple pathways or approaches for solving the problem. They appear in the Review section of many *MathLinks* packets, and in many Packet Resource sections (Essentials Skills or Nonroutine Problems) on the Teacher Portal. Open Middle problems appear to be procedural in nature, but turn out to be more challenging once students begin to solve them (i.e. higher depth of knowledge than traditional practice).

Poster Problems² add variety to classwork as students get out of their seats for group review and practice. Poster Problems are located in the Review section of all *MathLinks* packets. This activity routine encourages students to share ideas in safe, small group conversations, confront misconceptions, and critique the reasoning of their peers. Additionally Poster Problems allow teachers to informally assess learning and identify areas for follow-up.

Why Doesn't It Belong? (WDIB) is an adaptation of the classic “Cookie Monster” song from Sesame Street (One of these things is not like the others...) The structure is appropriate for warmups and review. WDIB problems mostly appear in the Review section of many *MathLinks* packets, and sometimes they're found within a lesson. WDIB is NOT a multiple-choice question. Typically, an argument can be made for several (perhaps all) of the choices to “not belong.” They promote divergent thinking, encourage students to apply mathematical and reasoning skills, and encourage mathematical discussions.

The MathLinks Rubric is a tool that can be used to provide timely, descriptive feedback so that students improve the quality of their responses to problems and tasks that may include applying procedures, creating or using representations (e.g. pictures, words, numbers, symbols, graphs), organizing and interpreting data, constructing written responses, and explaining reasoning. Using the rubric encourages investment in learning through self- and peer-reflection. The rubric focuses on improving abilities to solve problems (SMP1), communicating mathematical ideas and critiquing the reasoning of others (SMP3), and attending to precision (SMP6).

Computational Fluency Challenges appear on the Spiral Review pages of 6th grade packets because fluency is a general goal for this grade level. These challenges will help students improve computational skills without losing ground on current work.

Math Path Fluency Challenges appear on the Spiral Review pages of 7th grade packets. Though there are no 7th grade fluency requirements like in 6th grade, the 7th grade packets each include a maze for practice that reviews many different rational number and algebra skills.

Alge-Grids³ are puzzles designed to enhance logical, reasoning, algebraic reasoning, and number sense. They appear in the Review section of every other Grade 8 Student Packet. Working on these puzzles also provides a “need to know” for evaluating algebraic expressions.

READY-X³ puzzles require solving equations and systems of equations (both informally and formally). They appear in the Review section of every other Grade 8 Student Packet. They develop logical reasoning, algebraic reasoning, and number sense. Working on these puzzles also provides a “need to know” for solving algebraic equations.

¹“Open Middle” problems refer to a specific type of problem design that has been popularized on <https://www.openmiddle.com/>. Thanks to Open Middle Lead and Co-Founder Robert Kaplinsky for permitting us to include references to Open Middle in *MathLinks*.

²See <https://www.youtube.com/watch?v=hoXjEomWGzk&t=2s> for more details about how to implement poster problems, or use the slide deck provided.

³Alge-Grid puzzles were created by Carole Greenes and Tanner Wolfram. The *MathLinks* team thanks the authors for permission to use the puzzles in this program.