

Choice The third category of engagement strategies is choice. Any time that a student can make his or her own choice about learning, engagement is increased. The homework menus presented in Chapter 7 are a great example. Figure 16.2 shows a menu for math.

In addition to menus, tiered math problems provide choices with just the right amount of challenge for individual students. For any math problem, provide options of increasing difficulty from an introductory level to a more sophisticated level. Wormeli (2007) provided an example for finding the surface area of three-dimensional solids. From least to most sophisticated, the tiers could be: determine the surface area of a cube; determine the surface area of a rectangular prism; determine the amount of wrapping paper needed to cover a rectangular box; determine how many cans of paint you'll need to buy to paint a house with given dimensions, if one can of paint covers 46 square feet (p. 84). Once students choose a starting point, the teacher can guide them through increasing levels of mastery.

Another way to offer choice to students is to allow them to work in different group sizes. Activities can be done by the whole class or half the class, in small groups or teams of various size, partners, triads, or by individual study (Wormeli, 2007). Fitzell (2005) offered some examples of ways to collaborate on math problems:

- Solve problems with a partner; one solves while one explains
- Solve complex story problems in a small group; make sure everyone contributes
- Have teams construct problems linking many math operations, then solve them (p. 158).

Choose and complete three activities in a row.


<p>There are 25 students in the class. To complete a craft project, each student needs 3 pipe cleaners. Write an equation to show how many pipe cleaners are needed in all. Draw a picture model to go with it.</p>	<p>Your teacher is correcting math homework. A student multiplied 32×5 and wrote the answer as 150. If you were the teacher, how would you explain to the student how to correctly solve the problem?</p>	<p>Solve the problem 48×4 two different ways</p>
<p>Create a "caterpillar" that has seven body parts:</p>  <p>Place prime numbers in each body part so that the sum of the numbers equals 58.</p>	<p>Which product do you think will be greater? Why?</p> <p>$38 \times 9 =$ $3 \times 89 =$</p>	<p>Your brother has 15 stuffed animals. Your friend has twice as many as your brother. You have a third as many as your friend. Write an equation to show how you figured out how many you have.</p>
<p>Make a collage of items that can be divided into equal parts or fractions.</p>	<p>Interview a classmate about ways that multiplication and division are used in daily life.</p>	<p>You are bringing a birthday treat to school. There are 24 people including yourself and the teacher. You buy a bag of 72 candies. Write an equation to show how each person received equal amounts and how many are left over.</p>

Figure 16.2. Math menu. (Adapted from Westphal, L.E. [2007]. *Differentiating with menus: Math*. Waco, TX: Prufrock Press, Inc. <http://www.prufrock.com>.)

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