RECTANGULAR ARRAYS

Supplies needed: Six square tiles per student, large grid graph paper (2 sheets per student), 60+ sheets of 18 by 24 inch colored poster paper, numbered 1 through 60+ in large black numbers at center top of paper, masking tape, glue sticks or clear tape, scissors (1 pair per student), large grid chart on easel at front of room, chart marker on easel. The following vocabulary words for the “Focus Wall”: Prime Numbers, Composite Numbers, Square Numbers, Factors, Dimensions, Area, Multiples, Base of Rectangle, and Height of Rectangle.

1. Give each student 6 square tiles and direct them to make a rectangle using all six tiles. Challenge each person in the group to create a different rectangle. Ask students to note the lengths of the base and height of their rectangles. As students share this information with the class, draw the rectangle and record its dimensions on a large grid chart at the front of the room. Share with students that this is the project they will do with the numbers they are each assigned, except they will draw their rectangles on the large grid graph paper provided and not build the rectangles with tiles. They will cut out their rectangles and paste or tape them to the poster paper provided. They will label the dimensions of each rectangle on their poster. Their assigned number is at the top of their poster.

2. Distribute supplies to students and monitor their work to see if anyone has questions or needs additional direction. Encourage students who complete their tasks to assist others at their table who have more rectangles to create (ie. the person assigned 1 will have only one rectangle to draw, cut and paste.)

3. As students complete their posters, ask their table group to help them check to be certain all possible rectangles have been represented with dimensions labeled.

4. Ask students to tape their posters, left to right in numerical order, on the walls around the perimeter of the room. Indicate where the first number poster should be placed.

5. After most of the posters are in place, ask students to look for patterns in the number and types of rectangles represented on each of the posters. As students share what they see with the class, use questioning to orient them to recognize the prime and composite numbers, the square numbers, and multiples of various numbers. Move the prime number posters up higher on the wall as they are identified. Note that 1 is not prime. Encourage students to create definitions of these groups of numbers based on the patterns that have been found. Move other groups of numbers to a special position as necessary (square numbers might be moved down.) Place the vocabulary words in the appropriate places. Talk about the special category that 1 must be placed in and why. Consider playing the song “One is the loneliest number.”
RECTANGULAR ARRAYS

➢ For the number you have been assigned, draw all the possible rectangles with whole number dimensions having the same area as your assigned number on large grid graph paper.

➢ Remember, for this activity, a 2 by 3 rectangle would be different from a 3 by 2 rectangle.

➢ Cut out your rectangles carefully. Paste or tape the rectangles having a given area on a poster labeled with that area.

➢ Check your rectangles carefully to be certain you have all the different possibilities for your assigned number.

➢ Be prepared to justify that your list is complete and explain how you found each of your rectangles.