

Factor Lattice Activity Instructions

There are many different options for teaching factor lattices. The following pages have a variety of activities that can be added or omitted based on student ability.

Two-Dimensional Lattices

Pre-Building Activities

- Exploring patterns on the factor lattices of numbers 1-13
- Drawing models of the factor lattices of numbers 14-29.
- Brainstorm a list of rules that apply to making a two dimensional factor lattice.
- Connect the powers of the prime factors with the lengths of sides of a rectangle.
- Draw a model as a class of a factor lattice for a larger number.

Building Activities:

- Students work in pairs to find the prime factorization of an assigned number.
- Prime factorization is approved, and pairs pick up supplies to construct lattice.
- Pairs construct the shape of lattice, and get it approved before recording factors.
- Lattice is glued to construction paper.
- Factors are written on the stickers and placed onto the paper next to marshmallows.

Post-Building Activity:

- Match numbers with 2-D lattices as an assessment activity.

Bridge to Three-Dimensional Lattices

- Discuss the prime factorizations of the 2-D numbers. Note that each has 2 unique prime factors.
- Have students complete lattices for numbers such as 100 on paper as a warm-up or drill activity for a few days.
- Discuss patterns of numbers that occur on lattices of larger numbers.

Three-Dimensional Lattices

Pre-Building Activities:

- Have students find the prime factorization for 24,40,and 30. What are the similarities and differences between the prime factorizations?
- Discuss that with two unique prime factors, we had a “length” and “width”, and when they were multiplied, a rectangle was constructed. The number 30 has 3 unique prime factors, so we have “length” , “width”, and “height.” What is constructed when we multiply $l*w*h$?
- Show students a picture of a cube on the overhead and in “3-D”. It is a good idea to have the l, w, and h color coded to help show patterns of numbers. As we move to the right of 1 we are multiplying by 2, as we move back we are multiplying by 3, and as we move up we are multiplying by 5.

Building Activities:

- Students work in pairs to find the prime factorization of an assigned number.
- Each number will have exactly three unique prime factors.
- Prime factorization is approved, and pairs pick up supplies to construct lattice.
- Pairs construct the shape of lattice, and get it approved before recording factors.
- Recommend making the base of the rectangular prism and build up for the third factor.
- Lattice is glued to construction paper.
- Factors are written on the stickers and placed onto paper next to marshmallows.

Post-Building Activity:

- Have pairs switch lattices and check to make sure all patterns follow the lattice rules.
- Use blank factor lattices (2-D and 3-D) to discover possible numbers that could fit the lattice.