

## The Common Denominator

A Family Math Newsletter

Geometry Unit 2: Extending Transformational Geometry

### Unit at a Glance



An important concept that permeates the entirety of this course is congruency. In this unit, students will study how transformations, such as translations, rotations, and reflections, on and off the coordinate plane, preserve the congruency of geometric shapes. The ideas about congruency will form the foundation for writing formal proofs, later in the course, involving congruent figures. In Extending Transformational Geometry, students will focus on performing transformations, identifying their characteristics, and predicting the effects of a transformation or composition of transformations. The following topics will be studied:

Topic	Length	Geometry Text Section(s)
Topic A: Reflections and Line Symmetry	Academic: 0.5 (90-minute) lesson Honors: 0.5 (90-minute) lesson	12.1
Topic B: Translations	Academic: 0.5 (90-minute) lesson Honors: 0.5 (90-minute) lessons	12.2
Topic C: Rotations and Rotational Symmetry	Academic: 1 (90-minute) lesson Honors: 1 (90-minute) lesson	12.3
Topic D: Compositions of Transformation	Academic: 1.5 (90-minute) lessons Honors: 1.5 (90-minute) lessons	12.4

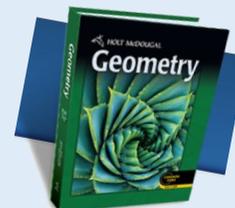
### Resource Toolkit

#### *Homework Help*

Digital resources exist in the HMH online textbook that can support student learning outside of the classroom. To access these resources, students can log into HMH through BCPSone Digital Content, then select “Student Resources”. The “Homework Helper” resource has a mini-lesson, then guided practice problems for students to complete that can help reinforce concepts that were learned in class. Also, check the “Videos & Activities” section where other beneficial resources can be found.

#### *Khan Academy Videos*

- Topic A: [Reflecting Shapes](#)
- Topic B: [Translating Shapes](#)
- Topic C: [Rotating Shapes](#)
- Topic D: [Mapping Shapes](#)



## Exploring Mathematics

### *Real World Connections*

Lines of symmetry, reflections, rotations, and translations are everywhere in the real world. It is very hard to walk out of your door and not see some form of geometric transformation. The spinning of a spoked bicycle wheel, looking at the reflection of an object in a puddle, noticing the symmetry of the front of a particular building or house, are all good examples of everyday geometric transformations.

### *Talking Points*

Have a conversation with your child about where they see geometry in real life. Use vocabulary like translation, reflection, rotation, and symmetry to describe things they see every day.

- Kicking a soccer from one point to another along the ground; translation, rotation, or reflection? Or might it be a combination?
- Sliding a box across the floor; translation, rotation, or reflection?
- What you see in your cellphone when you take a selfie; translation, rotation, or reflection?

Take a look at this YouTube video for some examples of real world transformations: [Real World Transformations](#).



"I think the universe is pure geometry—basically, a beautiful shape twisting around and dancing over space-time."

– Antony Garrett Lisi