

The Common Denominator

A Family Math Newsletter
Geometry Unit 3: Geometric Reasoning

Unit at a Glance



One of the most important skills that students can learn, that transcends Geometry, is the ability to form conjectures based on analyzing patterns (inductive reasoning) and using accepted or proven facts to support their claims (deductive reasoning). This unit introduces formal reasoning in geometric and non-geometric settings. Students begin this process by forming basic conjectures and writing them in conditional, or if-then form, and then analyzing the truth value of the statement, in the original and different forms. This leads to the development of formal definitions and logical proofs. Proofs are excellent lessons in Geometric Reasoning, therefore, students begin to develop algebraic and basic geometric proofs by the end of the unit. The following topics will be studied:

Topic	Length	Geometry Text Section(s)
Topic A: Using Inductive Reasoning to Make Conjectures	Academic: 0.5 (90-min) lesson Honors: 1 (90-min) lesson	2.1
Topic B: Conditional Statements, Biconditional Statements	Academic: 1 (90-min) lesson Honors: 1 (90-min) lessons	2.2, 2.4
Topic C: Using Deductive Reasoning to Verify Conjectures	Academic: 0.5 (90-min) lesson Honors: 1 (90-min) lesson	2.3
Topic D: Algebraic Proof	Academic: 1.5 (90-min) lessons Honors: 1.5 (90-min) lessons	2.5
Topic E: Geometric Proof; Flowchart and Paragraph Proof	Academic: 1 (90-min) lesson Honors: 1 (90-minute) lesson	2.6, 2.7

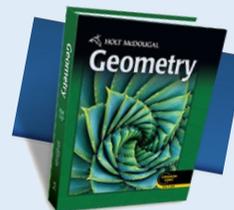
Resource Toolkit

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: [Using Inductive Reasoning \(Example 2\)](#)
- Topic C: [Deductive Reasoning](#)
- Topic D: [Using Deductive Reasoning](#)
- Topic E: [CA Geometry: More Proofs](#)



Exploring Mathematics

Conversations at Home

Consider working on a Sudoku puzzle as a family. One member is the writer and before putting in a number, the reason for putting the number in the puzzle can be explained. This helps students work on their justifications which is a key skill for Unit 3. A digital Sudoku through the New York Times can be found at their website. [NYT Sudoku](#)

Check out the website [Would You Rather Math](#). Pick one of the activities and have a discussion, making sure to talk about the reasons why the choice was made.

Try the daily Set puzzle on the [Set Game Website](#). Here are the [Set Rules](#).

4		9	5	7		3		
7			4			2	6	
2		8				9		4
9					1	5	3	2
	2	3	9			1		
	1		3	2	4			
8	4	5						9
	7		1	9	5			
				4	6		5	3

“Mathematical reasoning may be regarded rather schematically as the exercise of a combination of two facilities, which we may call intuition and ingenuity.”

– Alan Turing