

**Reasoning About Numbers
JASON Academy
Road Map**

Objective	Title of Activity	Assignment	Time
Week One			
Read package file for Week One content	Week 1 Content	Read through package file for Week One content	1 hour
Begin your journal by reflecting upon your experiences	How Did You Learn It?	Reflect upon your own experiences as a learner in your course journal.	.5 hours
Reflect upon your state's math standards	Reasoning and Your Standards	Read the mathematics standards for your state or district, noting the standards or references to mathematical reasoning.	.5 hours
Complete an activity about number arrays	The Number Array Interactive Tool	Complete an activity using the Number Array interactive tool.	1 hour
Complete an activity about number patterns in multiplication	Number Patterns in Multiplication	Using multiplication tables with the Number Array interactive tool, make conjectures about number patterns and test your conjectures with other numbers.	1 hour
Analyze patterns and explain mathematically	Do You See What I See?	Name the table, describe the pattern identified and describe the mathematical explanation for why the pattern appears in that table. Provide feedback to other participants.	1 hour
Analyze patterns if they are changed	Does the Generalization Hold?	Analyze what happens to a pattern if the chart is changed by checking your predictions and explain any consistencies or inconsistencies.	1 hour

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Week Two			
Read package file for Week Two content	Week 2 Content	Read through package file for Week Two content	1 hour
Create a rule for LCMs	LCM Patterns and Rules	Attempt to create a rule that will give the first common multiple of a selected number pair.	1 hour
Create a model for factoring using arrays	Factoring with Arrays	Provide a model for factoring using arrays and the interactive tool Multiplication and Division with Arrays.	1 hour
Analyze the Locker Problem	The Locker Problem	Work on factoring using The Locker Problem.	1 hour
Share divisibility rules	Your Own Divisibility Rules	Share a divisibility rule and any explanations about that rule. Respond to another participant.	1 hour
Week Three			
Read package file for Week Three content	Week 3 Content	Read through package file for Week Three content	1 hour
Analyze mathematical games	The Factor Game and The Product Game	Analyze two mathematical strategy games. Select one and reflect on the strategies for winning and the mathematical knowledge drawn on as it was played	1 hour
Analyze prime numbers	Uncovered Primes	Find the relationship between the largest number whose multiples is needed to cover and the highest prime number left uncovered.	1 hour
Investigate GCF and Prime Numbers	Refining the LCM Rule	Investigate whether the greatest common factor and/or prime factors can be used in finding the least common multiple.	1 hour

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Week Four			
Read package file for Week Four content	Week 4 Content	Read through package file for Week Four content	1 hour
Find a rule	Explore Arithmetic Sequences	Participants find a rule that relates a number to its term number.	1 hour
Create a pattern rule	Rules for Geometric Sequences	Explore the pattern between the term number and the number in the sequence and write a rule.	1 hour
Explore numeric patterns and the visual sequence	Explore Square Numbers	Explore the connection of the numeric pattern and the visual sequence.	1 hour
Explore triangle numbers	Explore Triangle Numbers	Explore triangle numbers, post your most interesting finding to the discussion board, and respond to another participant.	1.5 hours
Week Five			
Read package file for Week Five content	Week 5 Content	Read through package file for Week Five content	1 hour
View a video and reflect	Reasoning in the Elementary Classroom	View a video and reflect on the role of reasoning in the classroom.	1 hour
Reflect on the course	Reasoning the Middle School Classroom	Reflect on what's been most important to you in this course.	.5 hours
Review research on reasoning	Research on Reasoning	Read what researchers have to say about aspects and implications of promoting reasoning in mathematical classrooms.	1 hour

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Look at a scenario and reflect	Evens and Odds	Read the conversation between the student and teacher and reflect on how to guide the student to use her developing ability to reason mathematically and solve the problem at hand.	1 hour
Explore solving problems	Solve a Problem	Select one of the problems presented and explain a problem solving approach, why the particular strategy was chosen, the mathematical ideas that helped solve the problem, and how students might respond to the problem.	1 hour
Reflect and respond	Ending Reflection	Reflect on what ideas stand out for you and what questions remain. Respond to other participants.	1 hour
Reading and responding to other participants over the 5 week course.			3 hours
		Total:	30 hours