

LessonTitle: A Question of Order		Alg 8.6
Utah State Core Standard and Indicators Algebra Standards 1.3.1, 2.2.5 Process Standards 1-5		
Summary		
In this lesson, students problem solve to order rational and irrational numbers in different group configurations.		
Enduring Understanding	Essential Questions	
Use the square roots of perfect squares to help you estimate the square roots of radical expressions.	How do you estimate the size of a radical expression?	
Skill Focus	Vocabulary Focus	
<ul style="list-style-type: none"> • Squares and square roots • Radical expressions • Ordering radical numbers 		
Assessment		
Materials		
Launch See “starters” below.		
Explore		
Summarize		
Apply		

Directions:

- 1) **Starter Activity:** Put the numbers in order from least to greatest:
- 2) **Learning Activity 1:** Post a large number line, including numbers from 0-10 in the front of the room. Place students in groups of four. Each group is assigned four numbers. Students are to locate and place their numbers on the number line between the appropriate integers. Once all groups have placed their numbers, the class should work together to decide if the entire order is correct.
- 3) **Learning Activity 2:** Give each student a number. Students are assigned arrange themselves so that the numbers are in order from least to greatest. You may choose to split up into smaller groups, with the groups ordering their own numbers and then coming together to get the entire set of numbers in order.

The following is the order for the numbers in activity 2.

0.132, $\frac{2}{7}$, 0.6^2 , $\frac{3}{7}$, 0.45, 0.63, 0.8^2 , $\frac{9}{14}$, $\frac{2}{3}$, $\frac{11}{15}$, 0,998,

$\sqrt{14}$, $\sqrt{21}$, $24/5$, $\sqrt{50}$, 3^2 , $100/11$, $\sqrt{97}$, 13.21 , 21.37 , $55/2$, 5^2 , 63.721 , 100.2

Starter Activity:

Put the numbers in order from least to greatest:

$$\sqrt{5}, 0.5, \frac{1}{5}, \frac{\sqrt{55}}{3}$$

Put the numbers in order from least to greatest:

$$0.61, \frac{\sqrt{16}}{2}, \sqrt{6}, 6.1, \frac{6}{5}$$

Activity 1: Group1

$$\sqrt{98}$$

$$\frac{\sqrt{35}}{10}$$

$$\frac{6400}{750}$$

$$7.\overline{32}$$

Activity 1: Group 2

$$\sqrt{10}$$

$$\frac{\sqrt{8}}{3}$$

$$\frac{500}{93}$$

$$93$$

$$9.5791\dots$$

Activity 1: Group 3

$$\sqrt{34}$$

$$\frac{\sqrt{400}}{2}$$

$$\frac{74}{60}$$

$$6.25$$

Activity 1: Group 4

$$\sqrt{62}$$

$$\frac{\sqrt{26}}{5}$$

$$\frac{632}{300}$$

π

Activity 1: Group 5

$$\sqrt{18}$$

$$\frac{\sqrt{64}}{4}$$

$$\frac{96}{10}$$

$$10$$

$$0.0625$$

Activity 1: Group 6

$$\sqrt{38}$$

$$\frac{\sqrt{26}}{2}$$

$$\frac{39}{5}$$

$$1.995$$

Activity 1: Group 7

$$\sqrt{80}$$

$$\frac{\sqrt{49}}{2}$$

$$\frac{48}{7}$$

$$4.333\dots$$

Activity 1: Group 8

$$\sqrt{3}$$

$$\frac{39}{9}$$

$$\frac{\sqrt{144}}{3}$$

$$5.00005$$

Activity 1: Group 9

$$\sqrt{5} \quad \frac{\sqrt{97}}{3}$$

$$8.2121 \quad \frac{17}{5}$$

Activity 1: Group 10

$$\sqrt{0.09}$$

$$\frac{\sqrt{100}}{2}$$

$$\frac{254}{255}$$

$$255$$

$$6.\overline{12}$$

Activity 2: Student numbers

$$\frac{55}{2}$$

$$\frac{3}{7}$$

$$\frac{11}{15}$$

$$\frac{100}{11}$$

$$\frac{24}{5}$$

$$\frac{2}{3}$$

Activity 2: Student numbers

$$\frac{2}{7}$$

$$\frac{9}{14}$$

$$\sqrt{50}$$

$$\sqrt{21}$$

$$\sqrt{97}$$

$$\sqrt{14}$$

$$(0.8)^2$$

$$3^2$$

Activity 2: Student numbers

$$(0.6)^2$$

0.998

21.37...

0.45...

63.721...

Activity 2: Student numbers

0.132...

13.21

0.63

100.2

5^2