

Fourth Grade Lessons

Each of our activities is designed to be flexible and self-contained. Please feel free to use any of the activities as the basis of your teaching or as supplementary materials.

You do not need to do more than one of the activities in order for them to be useful. However, we have listed them here in the approximate order that we have used them with students. This may be helpful for teachers looking for a series of activities.

Please explore our categorizations by activity type, process, and math concept if you are looking for something specific!

Fourth Grade Lessons

1. **Multiplicative Candy Boxes I** - This class centers on the possible amounts of candies two children, Juan and Marcia, have. Juan has a box of candy and Marcia has twice as much candy. What are the possible amounts of candies they might have?
2. **Multiplicative Candy Boxes II** - This class is a continuation of the Multiplicative Candy Boxes I lesson. It centers on the possible amounts of candies two children, Juan and Marcia, have. Juan has a box of candy and Marcia has twice as much candy. What are the possible amounts of candies they might have?
3. **Comparing Strips of Unmeasured Lengths I** - The class is the first of a series that will focus directly upon the algebraic representation of measurements and their multiplicative relations. Children are asked to compare the lengths of strips, to describe the relationships between them in multiple ways, and to demonstrate that the relationships they represent are true.
4. **Comparing Strips of Unmeasured Lengths II** - The class is the second of the "Strips of Unmeasured Lengths" series that will focus directly upon the algebraic representation of measurements and their multiplicative relations. Children are asked to compare the lengths of strips, to use algebraic notation to describe the relationships between them, and to demonstrate that the relationships they represent are true.
5. **Comparing Strips of Unmeasured Lengths III** - This is the third lesson in the "Strips of Unmeasured Lengths" series that focuses directly upon the algebraic representation of measurements and their multiplicative relations. We will work with the relationship $B = 3S$, focusing on equations and their verbal descriptions and on true and false equations and statements.
6. **Fourth Grade Assessment I** - This is a written assessment where children will interpret and determine the truth or falsehood of equations and statements that describe comparisons between quantities.
7. **Fourth Grade Assessment I Review** - Children discuss responses to problems where they interpret and determine the truth or falsehood of equations and of statements that describe comparisons between quantities.
8. **Three to One** - Children discuss and produce verbal and mathematical statements on the proportion, $S:L :: 1:3$, that is, on the function $f(x) = 3x$ and on its inverse $f^{-1}(x) = 1/3x$
9. **Fourth Grade Assessment II** - This is a written assessment where children will interpret and determine the truth or falsehood of equations and of statements that describe comparisons between quantities.
10. **Consistency** - Children choose pairs of numbers that maintain the relationship of 1 to 3 that is given in a statement, and they explain why they believe the relationship is maintained.
11. **Cartesian Candy Bars I** - We compare ratios of various ordered pairs in a Cartesian grid. The initial discussion concerns the space as a whole; the task will focus on selected points and on the ratio of the dependent variable to the independent variable.
12. **Cartesian Candy Bars II** - Children work on sharing different amounts of candy bars among different numbers of people. They compare ratios (candy bars per person) and plot points in a Cartesian grid.
13. **The Better Paying Job I** - Children work on a problem about rate of pay per hour of work. They compare ratios (dollars earned per hour of work) and discuss and plot points in a Cartesian plane.
14. **The Better Paying Job II** - Children work on a problem about rate of pay per hour of work. They compare ratios (dollars earned per hour of work) and discuss and plot points in a Cartesian plane.
15. **Graphing Halves and Doubles** - Children work on a problem about distance and time and compare two rates: half a meter per second and two meters per second.
16. **Graphing Thirds and Triples** - Children work on a problem about distance and time and compare two rates: one third of a meter per second and three meters per second.
17. **Varying Speed** - Children are asked to tell a story about a trip depicted through a graph that has varying slopes/speeds.
18. **Varying Velocity** - Children are asked to tell a story about a trip depicted through a graph that has varying slopes/velocities.
19. **Fourth Grade Assessment III** - This is a written assessment where children will be asked to interpret graphs and to interpret and determine the truth or falsehood of equations and statements that describe comparisons between quantities.
20. **Graphing A Story** - A trip is described in miles, hours, and miles/hr. Students produce a graph from the description. They then produce a table from the graph and answer questions about the trip.
21. **Wallet Problem I** - Students compare the amounts of money two students have. The amounts are described relationally but not through precise dollar amounts.
22. **Wallet Problem II** - Students will be given a wallet problem. They will be asked to compare the amounts of money two students have. The amounts are described relationally but not through precise dollar amounts.
23. **Wallet Problem III** - Students will continue working with the wallet problem. They will be shown a graph for Mike's amounts and asked to (a) determine whether it represents Robin's or Mike's money and (b) to predict where the line for Mike would fall. Later they will plot Mike's amounts and will discuss why the lines cross.
24. **Equations and Inequalities** - Students will work with equations and inequalities, first with simple ones and later with comparisons of two functions. The Wallet Problem, introduced in a previous lesson, will provide the background context.
25. **Intervals** - Students reason about graphs showing growth over time. They compare heights of children and heights of two animals at different time intervals.
26. **Evaluation Problem** - Students will be given a problem that asks about the amount of money each person has, based on the amount in a piggy bank. They will be given one graph and asked to draw the second graph.
27. **Running Race I** - Compare a race between two students: one who runs at a constant pace, the other who tires out as the race proceeds.
28. **Running Race II** - Compare a race between two students: one who runs at a constant pace and one who changes pace as the race proceeds.
29. **Fourth Grade Assessment IV** - This is a written assessment where children will compare two students. One of the students' speed can be represented linearly while the other's speed is represented by a non-linear graph.
30. **Swimming Pools I** - Compare how two swimming pools fill up with water over several hours.
31. **Swimming Pools II** - Students will examine the rate of pools filling over several hours.
32. **Comparing Functions** - This lesson is split into two days. In the first class, the students will analyze eight basic graph shapes and will represent and solve a verbal problem involving the choice between two functions. In the second one they will be asked to choose, among the eight basic graph shapes, the ones that matches specific situations.

33. **Two Phone Plans I** - Students compare two phone plans, one of which has a lower rate, but a monthly basic charge; the other has a higher rate but no basic charge.
34. **Two Phone Plans II** - Students will work on the comparison between two phone plans (also used in the lesson "Two Phone Plans I"), one of which has a lower rate, but a monthly basic charge, the other has a higher rate but no basic charge.
35. **Three Heights Review** - In this class we will explore: (a) How children deal with comparisons, (b) How they draw inferences from comparisons, and (c) How they represent comparisons between three unknown amounts.