



Problem Solving 5-6 Syllabus

Course Goals

1 School Year Preparation

Students practice problem solving skills that will prepare them for upcoming school years.

2 Learn New Concepts

Students learn new mathematical concepts that they have not yet encountered in their math courses.

Course Topics

1 Think One Method

Students learn to think about how much could get completed in one hour and use that information to see how long it takes to complete a task.

2 Two Ten Method

Students replace numbers in a word problem with two and ten to make the problem easier, and then use that model to solve with the original numbers.

3 Draw a Picture Method

Students draw a picture of the situation in a word problem to help them visualize what is going on.

4 Venn Diagram Method

Students use a Venn Diagram to look at how sets overlap with each other and use that information to make sense of situations.

5 Subtraction Method

Students draw pictures and recognize how finding a larger value and then subtracting a smaller value from within can help solve some types of problems.

6 Function Machines

Students see how function machines do the same thing to each input and will give an output through various operations.

7 Algebra Problem Solving

Students are introduced to variables and algebraic equations in the context of word problems.

8 Pattern Problem Solving

Students learn various methods for solving problems with patterns such as making a list, working backwards, and working with unusual patterns.

9 Logic Problem Methods

Students learn logic methods to make sense of various types of situations. These problems use statements like "squares are rectangles, but not all rectangles are squares".

10 Fractions/Ratios Methods

Students learn how fractions and ratios can help solve problems like with similar triangles or other shapes and for measurement.

11 Geometric Methods

Students learn how to use geometric methods to solve word problems, including using things like perfect squares

12 Permutation Problem Solving Methods

Students learn methods for solving problems related to permutations. There are specific formulas for these problems that students learn and use.

13 Cryptarithms and Whodunits Methods

Students learn how to solve more difficult multi-step problems related to more difficult logic problems and cryptography and codes.

Course Schedule

Day 1

Introduction and Ice Breaker

Students get to know each other and their instructor, and they briefly review classroom rules.

Take Diagnostic

Students take the Diagnostic Test.

Day 2

Starter Problem 1

Students look at a type of problem before they have received specific instructions for the best way to solve it, with the goal to get them thinking about strategies and concepts they can use.

Lesson 1 - Think One and Two-Ten

Students learn about and then practice the Think One and Two-Ten methods for solving problems.

Day 3

Starter Problem 2

Students look at a type of problem before they have received specific instructions for the best way to solve it, with the goal to get them thinking about strategies and concepts they can use.

Lesson 2 - Draw a Picture and Venn Diagrams

Students learn about and then practice the Draw a Picture and Venn Diagram Methods of solving word problems

Progress Test

Students take a progress test to assess how well they are progressing in terms of learning to use the problem solving techniques.

Day 4

Starter Problem 3

Students look at a type of problem before they have received specific instructions for the best way to solve it, with the goal to get them thinking about strategies and concepts they can use.

Lesson 3 - Subtraction

Students learn about and practice the Subtraction method for solving word problems.

Day 5

Starter Problem 4

Students look at a type of problem before they have received specific instructions for the best way to solve it, with the goal to get them thinking about strategies and concepts they can use.

Lesson 4 - Function Machines

Students learn about and practice using Function Machines to problem solve.

Progress Test

Students take a progress test to assess how well they are progressing in terms of learning to use the problem solving techniques.

Day 6

Starter Problem 5

Students look at a type of problem before they have received specific instructions for the best way to solve it, with the goal to get them thinking about strategies and concepts they can use.

Lesson 5 - Algebra

Students learn about and practice how variables and algebraic equations work in the context of word problems.

Day 7

Starter Problem 6

Students look at a type of problem before they have received specific instructions for the best way to solve it, with the goal to get them thinking about strategies and concepts they can use.

Lesson 6 - Patterns

Students learn about and practice methods for solving problems utilizing patterns, such as making a list, working backwards, and working with unusual patterns.

Day 8

Starter Problem 7

Students look at a type of problem before they have received specific instructions for the best way to solve it, with the goal to get them thinking about strategies and concepts they can use.

Lesson 7 - Logic

Students learn about and practice solving problems using logic methods to make sense of various types of situations. These problems use statements like "squares are rectangles, but not all rectangles are squares".

Progress Test

Students take a progress test to assess how well they are progressing in terms of learning to use the problem solving techniques.

Day 9

Starter Problem 8

Students look at a type of problem before they have received specific instructions for the best way to solve it, with the goal to get them thinking about strategies and concepts they can use.

Lesson 8 - Fractions

Students learn about and practice using fractions and ratios to solve problems with similar triangles or other shapes and for measurement.

Day 10

Starter Problem 9

Students look at a type of problem before they have received specific instructions for the best way to solve it, with the goal to get them thinking about strategies and concepts they can use.

Lesson 9 - Geometry

Students learn about and use geometric methods to solve word problems, including finding perfect squares.

Take Final Assessment

Students take the Final Assessment to see how far they have progressed over the course of the session.

©2019 Fairfax Collegiate School, LLC. All rights reserved.

Updated on 3/28/2019