

Investigations: Students of Investigations

Introduction This tutorial looks at the Investigations program from the students' perspective. It shows features of the Student Activity Book and Student Math Handbook, explains the students' role in the program, and walks through some of the activities students might see during a typical day with Investigations.

Students' Role In Investigations, students write, draw, and discuss math ideas. They use a variety of approaches, manipulatives, calculators, and computer software to make mathematical conclusions. Students develop a stronger foundation in number and operations, which leads to a greater understanding of higher-level concepts, such as algebra.

Students come into the classroom with ideas about math (for example, ideas on topics like numbers, measurement, and patterns). When given the opportunity to learn in an environment that makes sense of math using a hands-on approach, students develop problem-solving methods, think openly, and work collaboratively.

Student Activity Book

There are many different types of pages in the Student Activity Book. This consumable book holds all of the workbook pages for lessons, games, daily practice, and homework. It is available in two formats: a complete workbook that contains all the pages for all the units in Investigations and individual Curriculum Unit volumes that hold the pages used in each unit of Investigations. Both formats have the same information and pages.

The following icons are useful in distinguishing between the types of pages students and teachers use in the Student Activity Book:



Homework pages are identified with a backpack icon. Homework pages also include a guardian note that refers to what students learned in school and Student Math Handbook pages for reference. The Student Math Handbook pages are listed next to an open book symbol.



The Daily Practice is represented by a pencil icon. Based on how these pages are assigned, students may use them as additional classwork, homework, or enrichment. They help students develop concrete understanding of the concepts in a unit and review prior knowledge.



A spinner icon indicates the pages used for games. These pages may have game directions, playing mats, cards, or recording sheets. For consistency, the same icon is used on game pages throughout the Student Math Handbook as well.

All of the pages that do not have an icon in the Student Activity Book are pages used during a lesson. Students use these pages to apply their mathematical thinking for the concepts and skills they are learning.

Student Math Handbook

The Student Math Handbook is an easy-to-use reference for students. This resource, available for students in Grades 1 through 5, highlights the major mathematical words and ideas for students. It also provides directions for games used in class or at home. It is available online through SuccessNet or as a flip chart for Grades K–2.

The Student Math Handbook is divided into two sections. The first section, titled Math Words and Ideas, gives definitions and examples of key math concepts. All of these pages are represented in green in the Table of Contents and by a green border at the top of each Math Words and Ideas page.

Math Words and Ideas

Number and Operations	
Representing Place Value	6
Place Value: Ones, Tens, and Hundreds	7
Place Value: Many Ways to Make 145	9
Place Value: Ones, Tens, Hundreds, and Thousands	10
An Addition Situation	12
Tools to Represent Addition Problems	13
Addition Combinations	16
Strategies for Solving Addition Problems	20
Adding More Than Two Numbers	25
Subtraction Situations	26
Tools to Represent Subtraction Problems	29
Subtraction Facts Related to Addition Combinations	31
Strategies for Solving Subtraction Problems	32
Adding and Subtracting Tens and Hundreds	36
Coin Values and Equivalencies	37
Multiplication	39
Solving Multiplication Problems	40
Skip Counting	42
Multiples of 5 and Multiples of 10	43
Solving Related Multiplication Problems	44
Arrays	45
Using Arrays to Solve Multiplication Problems	47
Division	47
Solving Division Problems	48
Multiplication Combinations	49
Square Numbers	52
Prime Numbers	53
Even Numbers and Odd Numbers	54
Fractions	56
Fractions of an Area	57
Naming Fractions	58
Fractions of a Group of Objects	60
Using Fractions for Quantities Greater Than One	61
Equivalent Fractions	63

The second part of the Student Math Handbook is the Games section. In this section, students have the directions to all of the games they play throughout the school year. Students can use this section to conceptualize the math topics they are learning as well as for ongoing practice and review.

Games

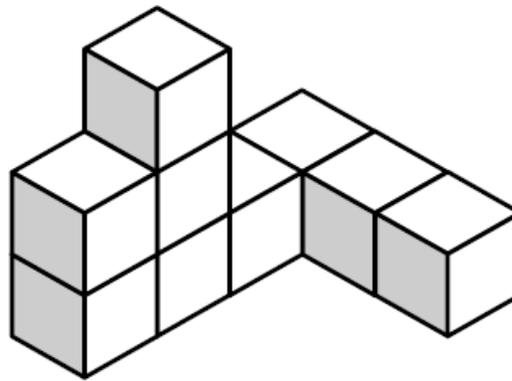
Games Chart	
Capture from 300 to 600 (Unit 1)	G1
Capture 5 (Unit 1)	G3
Capture on the 300 Chart (Unit 2)	G4
Close to 100 (Unit 1)	G5
Collect \$2.00 (Unit 1)	G6
Collections Compare (Unit 1)	G7
Collections Match (Unit 2)	G8
Count and Compare (Unit 2)	G9
Factor Pairs (Unit 5)	G10
Fraction Cookie (Unit 7)	G11
Go Collecting (Unit 3)	G13
How Far From 100? (Unit 2)	G15
Make a Dollar (Unit 1)	G16
Missing Factors (Unit 5)	G17
Practicing with Multiplication Cards (Unit 5)	G19
Who's My Shape? (Unit 9)	G21

All of the game pages are marked in orange in the Table of Contents and by an orange border at the top of each page.

A Typical Day

Students will encounter many different activities—including Classroom Routines or Ten-Minute Math, a Math Workshop, and math games—during a typical day.

In the morning (or at another free point in the day, such as after lunch), students will apply their mathematical understandings in Classroom Routines or Ten-Minute Math. An example of this activity is Quick Images. During the activity, students recreate an image in some way, such as by drawing a sketch. This is followed up with a discussion of strategies to reinforce visualization, grouping, and conceptual thinking.



During math session or lesson time, students may work individually, in pairs and groups, or as a class. Students interact with teachers as they instruct and facilitate. Students complete activities in their Student Activity Books; they may use manipulatives or card packages to complete these activities.

Some lessons involve a Math Workshop to reinforce mathematical ideas. During this time, students complete a series of activities, such as solving problems or playing the games found in their Student Math Handbooks. An example of a math game students play is Close to 100. In this game, each student is dealt six cards. Using four of the cards, they need to make 2 two-digit numbers that will get them as close to one hundred as possible. The difference between the scores is recorded; the lower the difference, the better.

Students talk about major concepts during class discussions within a session. They share ideas and examples, sort through misconceptions, and establish mathematical understandings. At the end of each lesson, students wrap up their learning with session follow-ups, during which students review ideas and are assigned daily practice or homework.

Investigations is an inquiry-based method of learning mathematics. Students are engaged in problem solving through written work, hands-on tasks, and discussions.

Review

This tutorial reviewed the student resources used in Investigations: the Student Activity Book and the Student Math Handbook.

The Student Activity Book is a consumable workbook that students use to record their answers for lessons, games, daily practice, and homework.

The Student Math Handbook is a reference tool that gives definitions and examples of grade-level concepts and provides game directions in the games section.

By using these resources in conjunction with the hands-on approach of the program, students will develop their mathematical thinking and expand their knowledge of basic math skills to more higher-level concepts.