



Holyoke Public Schools Mathematics Curriculum Map Grade 1

How Many of Each?

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Curriculum Maps

GOALS:

1. To ensure that students are exposed to a rigorous curriculum in every school and every grade.
2. To have consistent instruction and assessment district wide.
3. To prepare students for the MCAS test.
4. To explain what is expected to be covered in each CMP or Investigations Unit.

EXPECTATIONS:

The district's expectation is for students to successfully meet the Massachusetts Mathematics Standards. In order to help facilitate this, teachers are required to follow the curriculum maps. The successful implementation of these maps requires teachers to thoroughly read each lesson in the TE and work through the project and problems in the map and the text prior to planning their lessons. Work should be kept in the binder with the curriculum map. Working through the math is an essential part of lesson planning, as it helps the teacher to better understand the concept being taught and the students' possible misunderstandings.

FEEDBACK TO STUDENTS:

Feedback needs to happen daily in the classroom. There are many ways to give feedback. Conferencing, observations, questions asked during your opening, work time and closing are all forms of feedback.

MAP COMPONENTS:

1. GENERAL PROBING QUESTIONS
2. UNIT SPECIFIC PROBING QUESTIONS
3. GOALS OF UNIT, CONTENT STANDARDS, & PERFORMANCE STANDARDS
4. PROJECT- to be done at end of unit and kept in the portfolio.
 - o STUDENT MASTER – for project
5. INVESTIGATIONS:
 - o NOTEBOOK - includes: 3 Ring Binder, Bound Notebook, Portfolio
 - o ACCOUNTABLE TALK – using probing questions
5. ON-DEMAND ASSESSMENTS - to be done during teaching of unit.
 - o STUDENT MASTERS- for on-demand assessments.

Mathematics

Evidence of Learning Artifacts

Artifact	K - 1	2 - 5	6 - 8
<i>Folder (F)*</i>	<ul style="list-style-type: none"> ○ Student Work¹ 	<ul style="list-style-type: none"> ○ Vocabulary ○ Student sheets¹ <p style="text-align: center;"><u>All work should be dated and listed by investigation</u></p>	<ul style="list-style-type: none"> ○ Math books ○ Vocabulary ○ Core Problems¹ ○ Lab sheets <p style="text-align: center;"><u>All work should be dated and listed by investigation</u></p>
<i>Marble Notebook (MJ)</i>	<ul style="list-style-type: none"> ○ Journal entries² 	<ul style="list-style-type: none"> ○ Table of Contents ○ Problem of the day ○ Journal entries ○ Class work <p style="text-align: center;"><u>All work should be dated and listed by investigation in the Table of Contents</u></p>	<ul style="list-style-type: none"> ○ Table of Contents ○ Work time ○ Journal entries <p style="text-align: center;"><u>All work should be dated and listed by investigation in the Table of Contents</u></p>
<i>Portfolio³ (P)</i>	<ul style="list-style-type: none"> ○ On-demand tasks ○ Projects ○ Teacher anecdotal notes 	<ul style="list-style-type: none"> ○ On-demand tasks ○ Reflections ○ Projects <p style="text-align: center;"><u>All work should be dated and listed by investigation</u></p>	<ul style="list-style-type: none"> ○ On-demand tasks ○ Reflections ○ Projects <p style="text-align: center;"><u>All work should be dated and listed by investigation</u></p>

* Folders may be used in place of binders for these grade levels

¹ Send home at the end of each unit

² Use grade level math journals

³ All documents should be kept for the entire year

How Many of Each?

Probing Questions for Accountable Talk

As students progress through this unit, they should be asked the following questions to assess their knowledge about problem situations that involve addition and subtraction.

- *How would you describe pattern blocks?*
- *How do you know one quantity is smaller than the other?*
- *How did you figure out how many there were in all?*

Classroom Routines

Morning Meeting

Quick Images

Start with/Get to

Implementing Investigations Grade 1 Review pages 24 – 28.

Classroom Routines: Investigation 1 - Session 1, Morning Meeting
Investigation 2 - Session 6, Quick Images
Investigation 2 – Session 1, Start With/Get to

Additional Probing Questions for Accountable Talk

The teacher's role in probing for understanding is to ask questions that will:

- Clarify student understanding
- Get at the objective of the lesson
- Go deeper into the mathematics
- Uncover misconceptions and misunderstandings
- Compare and contrast

The students' role is to be an active participant by:

- Explaining their strategies
- Asking clarifying questions to teacher and other students
- Being active listeners
- Using the language of mathematics

When probing for understanding the teacher and students can use one or more of these suggested questions:

- Why are you using $< >$?
- What are the ways you could $< >$?
- What else do you know?
- How do you know that?
- Can you show that?
- What convention did you use here?
- What can you do if you do not know?
- What standard does this work apply to?
- Is this always true?
- How does this connect to other mathematics we have learned?
- What is the same and what are the differences between $< >$?
- Can you back that up?
- Where is the math in your sketch?
- What does the answer mean?
- Does the answer make sense?
- Could you have used another operation to solve this task?
- Can you give examples?
- Can you say it another way?
- What's the math?
- Tell me about the task in your own words?
- What are you trying to find?
- How did you make your estimate?
- Will your answer be an over-estimate or an under-estimate? Why?
- I noticed that you used $< \dots >$ to help you understand the task. Can you show us what you did and tell us how it helped you?
- Where do you see $< >$ in your $<$ model, diagram, number line, chart, etc. $>$?
- How can we see $< >$ in your $<$ model, diagram, number line, chart, etc. $>$?
- You have used a representation that is different from others that I've seen. Can you show us your $<$ model, diagram, number line, chart, etc. $>$, and tell us how it helped you?
- How did you decide to solve the task? Why did you choose that method?
- Did you try any method that didn't work?
 - Tell us what you tried.
 - Why didn't it work?
 - Would it ever work?

How Many of Each?

HPS-7

Goals, Content Standards, & Performance Standards

Unit Goals:

- Count a set of up to 20 objects.
- Compare and order quantities to 12.
- Combine two small quantities.
- Interpret (retell the action and sequence) and solve addition story problems.
- Find more than one combination of two addends for a number up to 10 (e.g., 7 is 4 and 3 and also 5 and 2).

Math Content Standards: Remember grades 1 and 2 share the same standards.

- (2.N.1) Name and write (in numerals) whole numbers to a 1,000, identify the place values of the digits, and order the numbers.
- (2.N.2) Identify and distinguish among multiple uses of numbers, including cardinal (to tell how many) and ordinal (to tell which one), and an ordered list and numbers as labels and as measurements.
- (2.N.4) Compare whole numbers using terms and symbols, e.g., less than, equal to, greater than ($<$, $>$, $=$).
- (2.N.6) Identify the value of all U.S. coins, and \$1, \$5, \$10, and \$20 bills. Find the value of a collection of coins and dollar bills in different ways to represent an amount of money up to \$5. Use appropriate notation when working with money.
- (2.N.7) Demonstrate an understanding of various meanings of addition and subtraction, e.g., addition as combination (plus, combined with, more); subtraction as comparison (how much less, how much more), equalizing (how many more are needed to make these equal), and separation (how much remaining).
- (2.M.1) Identify parts of the day (morning, afternoon, and evening), days of the week, and months of the year. Identify dates using a calendar.

Performance Standards:

- (M1a) Adds and subtracts whole numbers
- (M1b) Demonstrates understanding of the base ten place value system and uses this knowledge to solve arithmetic tasks
- (M1c) Uses exact numbers as appropriate in calculations
- (M4d) Gathers data about an entire group or by sampling group members to understand the concept of sample

UNIT: How Many of Each?

End-of-Unit Project

GRADE: 1

End-of-Unit Project (P)

Student work should be placed in portfolio (P).

The project is the culminating assessment which will allow students to apply what they learned in the unit. It is written in MCAS form to give students the experience of answering an open-response question.

End-of-Unit Assessment: Unit 1, M39 –M40 Resource Binder, “Resources Masters and Transparencies”

Benchmarks can be found on page 216 -223 in the Teacher’s Manual.

UNIT: How Many of Each?
Investigation 1 (1.1 – 1.4) DAYS: 5

GRADE: 1

<p>Evidence of Learning Artifacts</p> <p>Journal and Reflection questions should be posted and referred to at the beginning of the appropriate <i>Investigation</i>.</p> <p>Journal and Reflection entries need to be done in class as part of the closure and assessment.</p>	<p><i>Vocabulary</i> – calendar, data, estimate, hexagon, rectangle, schedule</p> <p><i>Work Time</i> – Student Sheets 1 – 4</p> <p><i>Journal Entries</i> – *Maximum 5 minutes</p> <p style="padding-left: 40px;">Inv. 1.2 What could you use a calendar for?</p> <p style="padding-left: 40px;">Inv. 1.4 How did you keep track of how many counters you had?</p> <p><i>Reflection</i> – Draw and label 3 different geoblock shapes you have explored.</p>
<p>Accountable Talk</p> <p>To promote learning, explore solutions, and justify reasoning, conversations between students and students or students and teacher must be accountable – accountable to the learning community, to the mathematics discipline, and to rigorous thinking.</p>	<p><i>As a result of this Investigation, students should be able to talk and manipulate the vocabulary of the Investigation in response to this type of question:</i></p> <p style="padding-left: 40px;">How did you know that? How can you use ...? Can you show another way? What convention did you use?</p> <p><i>These are some recommended questions that you might use. Others can be found at the beginning of the map and on the probing question sheet in the district mathematics guide.</i></p>

UNIT: How Many of Each?
Investigation 2 (2.1 – 2.7) DAYS: 8

GRADE: 1

<p>Evidence of Learning Artifacts</p> <p>Journal and Reflection questions should be posted and referred to at the beginning of the appropriate <i>Investigation</i>.</p> <p>Journal and Reflection entries need to be done in class as part of the closure and assessment.</p>	<p><i>Vocabulary</i> – count, counting back, equal to, greater than, image, in order, larger, largest, less than, more than, number line, row, smallest</p> <p><i>Work Time</i> – Student Sheet pages 5-14</p> <p><i>Journal Entries</i> – *Maximum 5 minutes</p> <p style="padding-left: 40px;">Inv. 2.3 Make a representation that shows what and how many were in your mystery box.</p> <p style="padding-left: 40px;">Inv. 2.5 Show how you know which card had the larger number?</p> <p><i>Reflection</i> – Draw and label 3 primary number cards in order from smallest to largest.</p>
<p>Accountable Talk</p> <p>To promote learning, explore solutions, and justify reasoning, conversations between students and students or students and teacher must be accountable – accountable to the learning community, to the mathematics discipline, and to rigorous thinking.</p>	<p><i>As a result of this Investigation, students should be able to talk and manipulate the vocabulary of the Investigation in response to this type of question:</i></p> <p style="padding-left: 40px;">How did you know...?</p> <p style="padding-left: 40px;">Can you solve the problem in a different way?</p> <p style="padding-left: 40px;">Does your answer make sense?</p> <p style="padding-left: 40px;">What was your strategy?</p> <p><i>These are some recommended questions that you might use. Others can be found at the beginning of the map and on the probing question sheet in the district mathematics guide.</i></p>

UNIT: How Many of Each?
Investigation 3 (3.1 – 3.7) DAYS: 8

GRADE: 1

<p>Evidence of Learning Artifacts</p> <p>Journal and Reflection questions should be posted and referred to at the beginning of the appropriate <i>Investigation</i>.</p> <p>Journal and Reflection entries need to be done in class as part of the closure and assessment.</p>	<p><i>Vocabulary</i> – add, addend, combine, counting all, counting on, equal, equation, fewer, more, plus, record, sum</p> <p><i>Work Time</i> – Student Sheet pages 17-32</p> <p><i>Journal Entries</i> – *Maximum 5 minutes</p> <p>Inv. 3.2 How did you total your row? Use pictures, numbers or words to show your thinking.</p> <p>Inv. 3.4 How did you determine the total number of dots?</p> <p>Inv. 3.7 What strategy did you use to find the total number of animals?</p> <p><i>Reflection</i> – When combining the numbers 4 and 3, does it matter whether you use counters, fingers, numbers, or cubes? Show your thinking using a picture strategy.</p>
<p>Accountable Talk</p> <p>To promote learning, explore solutions, and justify reasoning, conversations between students and students or students and teacher must be accountable – accountable to the learning community, to the mathematics discipline, and to rigorous thinking.</p>	<p><i>As a result of this Investigation, students should be able to talk and manipulate the vocabulary of the Investigation in response to this type of question:</i></p> <p>How did you know...? Can you solve the problem in a different way? Does your answer make sense? What was your strategy?</p> <p><i>These are some recommended questions that you might use. Others can be found at the beginning of the map and on the probing question sheet in the district mathematics guide.</i></p>

UNIT: How Many of Each?
Investigation 4 (4.1 – 4.7) DAYS: 8

GRADE: 1

<p>Evidence of Learning Artifacts</p> <p>Journal and Reflection questions should be posted and referred to at the beginning of the appropriate <i>Investigation</i>.</p> <p>Journal and Reflection entries need to be done in class as part of the closure and assessment.</p>	<p><i>Vocabulary</i> – cent, heads, money, penny, symbols, tails, total</p> <p><i>Work Time</i> – Student Sheet pages 33-49 (F) use pages 39 and 40 for the End-of-the-Unit Assessment</p> <p><i>Journal Entries</i> – *Maximum 5 minutes Inv. 4.2 How did you figure out the total number of each color in each tower? Inv. 4.5 Write 3 different combinations that total 9. Use pictures and numbers to show your work.</p> <p><i>Reflection</i> – Use pictures and numbers to show that 3 and 9 is greater than 6 and 5.</p>
<p>Accountable Talk</p> <p>To promote learning, explore solutions, and justify reasoning, conversations between students and students or students and teacher must be accountable – accountable to the learning community, to the mathematics discipline, and to rigorous thinking.</p>	<p><i>As a result of this Investigation, students should be able to talk and manipulate the vocabulary of the Investigation in response to this type of question:</i></p> <p>How did you know...? Can you solve the problem in a different way? Does your answer make sense? What was your strategy?</p> <p><i>These are some recommended questions that you might use. Others can be found at the beginning of the map and on the probing question sheet in the district mathematics guide.</i></p>

End-of-Unit Project

Student work should be placed in **portfolio (P)**.

The project is the culminating assessment which will allow students to apply what they have learned about finding totals and interpreting combining situations.

NAME: _____

DATE: _____

End-of-Unit Project

- **BE SURE TO ANSWER AND LABEL ALL PARTS OF EACH QUESTION.**
- **Show all work (diagrams, tables, and computations) on your answer sheet.**
- **If you do the work in your head, explain in writing how you did the work.**

Problem 1 How Many Cookies?

Solve the problem. Show your work.

Rosa made 7 cookies.

Max made 8 more cookies.

How many cookies did they make in all?



Problem 2 Eight Fruits

Try to find more than one way to solve the problem. Show your work.

I have 8 fruits.

Some are bananas. Some are apples.

How many of each could I have?

How many apples? How many bananas?



On-Demand Assessments

(To be filed in portfolio)

How Many in Each?

Investigations

In class individualized On-Demand tasks assess knowledge of mathematical facts, operations, concepts, and skills, and their efficient application to problem solving. The results of these different forms of assessment provide rich profiles of students' achievements in mathematics and serve as the basis for identifying curricula and instructional approaches to best develop their talents.

UNIT: How Many of Each?

On-Demand Assessments

GRADE: 1

<p style="text-align: center;">On-Demand Assessments (P)</p> <p style="text-align: center;"><u>How Many in Each?</u> Investigations</p> <p>In class individualized On-Demand tasks assess knowledge of mathematical facts, operations, concepts, and skills, and their efficient application to problem solving. The results of these different forms of assessment provide rich profiles of students' achievements in mathematics and serve as the basis for identifying curricula and instructional approaches to best develop their talents.</p>	<p><u>Inv.1:</u> Session 2 -4 Assessment Checklist*</p> <p><u>Inv. 2:</u> Resource Binder: Session 6, M23*</p> <p><u>Inv. 3:</u> Resource Binder: Session 6, M32*</p> <p>*Assessment Checklists should be kept with tracking sheets.</p> <p>*Please refer to the section in the Teacher's Unit Guide entitled, "Professional Development" for examples of student work for each assessment.</p>
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Assessment Checklist: Counting 20

Student	Knows the number names and order (Rote sequence)	Counts each object once and only once (1:1)	Has a system for keeping track	Double-checks	Accurately count 20 objects

Sessions 1.2, 1.3, 1.4

Unit 1

M3

Name _____

Date _____



How Many of Each?

Assessment: Counting 20

Draw 20 circles.

Show how you know that there are 20.

A large, empty rectangular box with a thin black border, intended for the student to draw 20 circles and show their counting strategy.

Name _____

Date _____

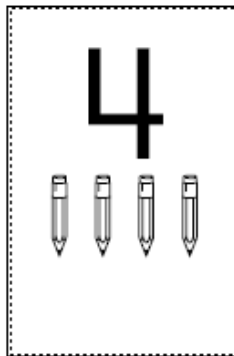
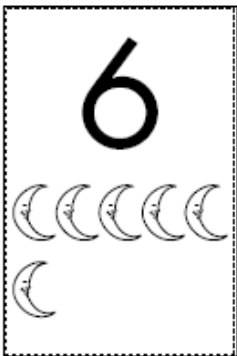


How Many of Each?

Assessment: *Double Compare*



Which pair of cards shows more?
Circle the cards.



Show how you know.

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Holyoke Public Schools

Mathematics Scoring Rubric

Score point 4:

The response shows a **comprehensive** understanding of the mathematical concept(s) and/or procedures embodied in the task(s). It indicates that the student has **completed the task(s) correctly**, using mathematically sound procedures. It contains **clear, complete explanations** and/or **adequate work required**.

Score point 3:

The response shows a **general** understanding of the mathematical concept(s) and/or procedures embodied in the task(s). It indicates that the student has **completed the task(s)**, using mathematically sound procedures. It contains **complete explanations** and/or **adequate work required**.

Score point 2:

The response shows a **basic** understanding of the mathematical concept(s) and/or procedures embodied in the task(s). It addresses **most aspects of the task(s)**, using mathematically sound procedures. It may contain a correct solution but provides **incomplete procedures, reasoning and/or explanations**. It may reflect **some misunderstandings** of the underlying mathematical concepts and/or procedures.

Score point 1:

The response shows a **minimal** understanding of the mathematical concepts and/or procedures embodied in the task(s). It addresses **some elements of the task(s) correctly** but reaches an **inadequate solution and/or provides reasoning that is faulty or incomplete**. It exhibits **multiple flaws related to a misunderstanding of important aspects** of the task(s), **misuse** of mathematical procedures, or faulty mathematical reasoning. It reflects a **lack of essential understanding** of the underlying mathematical concepts. It may contain a correct numerical answer but the **required work is not provided**.

Score point 0:

The response is **completely incorrect, irrelevant, or incoherent**, or contains a correct response arrived at using an **obviously incorrect procedure**.

NOTES