



# Holyoke Public Schools Mathematics Curriculum Map Grade K

## Who Is In the School Today?

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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: Folder, 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

<b>Artifact</b>	<b>K - 1</b>	<b>2 - 5</b>	<b>6 - 8</b>
<b><i>Folder (F)*</i></b>	<ul style="list-style-type: none"> <li>○ Student Work<sup>1</sup></li> </ul>	<ul style="list-style-type: none"> <li>○ Vocabulary</li> <li>○ Student sheets<sup>1</sup></li> </ul> <p style="text-align: center;"><b><u>All work should be dated and listed by investigation</u></b></p>	<ul style="list-style-type: none"> <li>○ Math books</li> <li>○ Vocabulary</li> <li>○ Core Problems<sup>1</sup></li> <li>○ Student sheets</li> </ul> <p style="text-align: center;"><b><u>All work should be dated and listed by investigation</u></b></p>
<b><i>Marble Notebook (MJ)</i></b>	<ul style="list-style-type: none"> <li>○ Journal entries<sup>2</sup></li> </ul>	<ul style="list-style-type: none"> <li>○ Table of Contents</li> <li>○ Problem of the day</li> <li>○ Journal entries</li> <li>○ Class work</li> </ul> <p style="text-align: center;"><b><u>All work should be dated and listed by investigation in the Table of Contents</u></b></p>	<ul style="list-style-type: none"> <li>○ Table of Contents</li> <li>○ Work time</li> <li>○ Journal entries</li> </ul> <p style="text-align: center;"><b><u>All work should be dated and listed by investigation in the Table of Contents</u></b></p>
<b><i>Portfolio<sup>3</sup> (P)</i></b>	<ul style="list-style-type: none"> <li>○ On-demand tasks</li> <li>○ Projects</li> <li>○ Teacher anecdotal notes</li> </ul>	<ul style="list-style-type: none"> <li>○ On-demand tasks</li> <li>○ Reflections</li> <li>○ Projects</li> </ul> <p style="text-align: center;"><b><u>All work should be dated and listed by investigation</u></b></p>	<ul style="list-style-type: none"> <li>○ On-demand tasks</li> <li>○ Reflections</li> <li>○ Projects</li> </ul> <p style="text-align: center;"><b><u>All work should be dated and listed by investigation</u></b></p>

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

<sup>1</sup> Send home at the end of each unit

<sup>2</sup> Use grade level math journals

<sup>3</sup> All documents should be kept for the entire year

## **Who Is In the School Today?**

### **Probing Questions for Accountable Talk**

As students progress through this unit, they should be asked the following questions to assess their knowledge about counting, sorting by attributes and numbers.

- *How did you know that?*
- *Can you show another way?*
- *What would happen if?*
- *Explain what methods/strategies you tried?*

### ***Classroom Routines***

Attendance: *Sessions 1.1, 1.2, 1.3, 1.4, 2.3, 2.4, 3.1, 3.3, 3.5, 3.7*

Calendar: *Sessions 1.5, 1.6, 2.1, 2.2, 2.5, 3.2, 3.4, 3.6*

Classroom Routines offer practice and review of key concepts at each grade level. After their initial introduction, these short activities, designed to take no longer than 10 minutes, support and balance the in-depth work of each curriculum unit.

Implementing Investigations in Grade K: Please review pages 22-27, for 2 Classroom Routines in this unit.

## 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?

# Goals, Content Standards, & Performance Standards

## Unit Goals:

- **Counting and Quantity:** Developing strategies for accurately counting a set of objects by ones
- **Data Analysis:** Sorting and Classifying
- **Data Analysis:** Carrying out a data investigation
- **Whole Number Operations:** Using manipulatives, drawing, tools, and notation to show strategies and solutions

## Math Content Standards:

- (K.N.1) Count by ones to at least 20.
- (K.N.2) Match quantities up to 10 with numerals and words.
- (K.G.1) Describe attributes of 2D & 3D shapes.
- (K.G.2) Identify, draw, and compare 2D shapes.
- (K.P.1) Identify the attributes of objects.
- (K.M.3) Use nonstandard units of measurement.
- (K.D.1) Collect, sort, organize and draw conclusions about data.

## Performance Standards:

- (M1a) Join things together, increases
- (M2d) Identify figures by their properties
- (M3d) Uses symbols to stand for any number, measured quantity, or object with concrete materials
- (M4a) Collect and organize data to test hypothesis by comparing sets
- (M4b) Displays data in line plots, graphs, tables, and charts
- (M4d) Gather data about an entire group
- (M4e) Predicts results, analyzes data, and finds out why some results are more likely or less likely

# UNIT: Who Is In the School Today?

## End-of-Unit Project

GRADE: K

<p style="text-align: center;"><b>End-of-Unit Project (P)</b></p> <p>Student work should be placed in portfolio (P).</p> <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.</p>	<p>Session 3.2: Pg. 101-103 Resource Binder: M6-M11</p> <p>Children will complete individual “<b>Counting Jar?</b>” books.</p> <ul style="list-style-type: none"><li>▪ Each page will have a counting jar with a representation of 1-6 items in the jar.</li><li>▪ Children will count the items in the jar.</li><li>▪ They will create new set of objects using paper block cut outs.</li><li>▪ They will then paste the correct number of items below each counting jar to represent the same quantity as in each jar.</li></ul>
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# UNIT: WHO IS IN THE SCHOOL TODAY?

Investigation 1 (1.1 – 1.6)

DAYS: 6

GRADE: K

<p><b>Evidence of Learning Artifacts</b></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><b>Vocabulary</b> – double-checking, connecting cubes, pattern blocks, geoblocks, colored tiles, attribute blocks, buttons, same and different</p> <p><b>Work Time</b> – Student Sheet 1</p> <p><b>Journal Entries</b> – <b>Inv. 1.3</b> Trace your hand. Count your fingers. Double check your count. Record the number.</p> <p><b>Reflection</b> – How do we count? How do we check that we counted correctly? Children respond orally and record answers.</p>
<p><b>Accountable Talk</b></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><i>How do we count?</i> <i>How do we know everyone was counted?</i> <i>How do we know how many are here?</i> <i>How can we record our counting?</i></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: WHO IS IN THE SCHOOL TODAY?**  
**Investigation 2 (2.1 – 2.5)                      DAYS: 5**

**GRADE: K**

<p style="text-align: center;"><b>Evidence of Learning Artifacts</b></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> – red, orange, yellow, green, blue, purple, brown, black, white, circle, square, triangle, rectangle, hexagon, large, big, small, little, longer, shorter, equivalent sets, attribute</p> <p><i>Work Time</i> – Student Sheets 2-3</p> <p><i>Journal Entries</i> –  <b>Inv. 2.5-</b> After counting how many in the “Counting Jar”, record how many and create an equivalent set.</p> <p><i>Reflection</i> – We are learning to count. What are some of the ways we count? What are some things that we count? How do we show what we know?</p>
<p style="text-align: center;"><b>Accountable Talk</b></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><i>How could we find out how many cubes are in the counting jar?</i>  <i>How can we tell that the sets are the same/equivalent?</i>  <i>How can we describe this button? What are the attributes?</i>  <i>Compare our class attendance stick to today’s stick of how many are present.</i></p> <p><i>These are some recommended questions that you might use. Others can be found be found at the beginning of the map and on the probing question sheet in the district mathematics guide.</i></p>

# UNIT: WHO IS IN THE SCHOOL TODAY?

Investigation 3 (3.1 – 3.7)

DAYS: 7

GRADE: K

<p><b>Evidence of Learning Artifacts</b></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> – thick, thin, more, less, equal</p> <p><i>Work Time</i> – Student Sheets 4</p> <p><i>Journal Entries</i> –</p> <p><b>Inv. 3.1</b> Record how many of your gender are in our class from the data we collected from Today’s Question Chart: Are you a girl or boy?. Use pictures and numbers to record your answer. Do we have more boys or girls in our class? How do you know?</p> <p><i>Reflection</i> – How many different ways can we sort attribute blocks? Teacher record list on class chart.</p>
<p><b>Accountable Talk</b></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><i>What does the survey chart tell us?</i></p> <p><i>Can you compare the quantities? Is there more, less or equal?</i></p> <p><i>How can we sort the children in our class? What attributes can we use?</i></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 learned about counting, numbers and sorting. It is written in MCAS form to give students the experience of answering an open-response question.

**NAME:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

## **End-of-Unit Project**

### **Who Is in School Today?**

- **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.**

Children will complete individual “**Counting Jar?**” books.

- Each page will have a counting jar with a representation of 1-6 items in the jar.
- Children will count the items in the jar.
- They will create new set of objects using paper block cut outs.
- They will then paste the correct number of items below each counting jar to represent the same quantity as in each jar.

# On-Demand Assessments

(To be filed in portfolio)

## Who Is In the School Today? 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: <sup>1</sup> WHO IS IN THE SCHOOL TODAY?

## On-Demand Assessments

GRADE: K

### On-Demand Assessments (P)

Who Is In the School Today?  
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.

**Inv. 1:** None

**Inv. 2:** Resource Binder: Session 2.1, M5\*

**Inv. 3:** Resource Binder: Session 3.2, M5\*

\*Assessment Checklists should be kept with tracking sheets.



# Assessment Checklist: Counting

Student	Knows the names of the numbers in order	Counts each object once and only once	Has a system for keeping track	Double-checks	Notes



# 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