



# Holyoke Public Schools Mathematics Curriculum Map Grade 1

## Number Games and Crayon Puzzles

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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</i></b> <b><i>(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>○ Lab 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</i></b> <b><i>(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</i></b> <sup>3</sup> <b><i>(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

## **Number Games and Crayon Puzzles** **Probing Questions for Accountable Talk**

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

*What strategy did you use?*

*How did you know which number to add to \_\_\_\_\_ to make a combination of 10?*

*Can you show me another way?*

### ***Classroom Routines***

Start With/Get To *Sessions: 1.1, 1.3, 1.5, 2.1, 2.4, 3.2, 3.4, 3.5, 3.7*

Quick Images *Sessions 2.2, 3.3, 3.6*

Morning Meeting *Sessions: 1.6, 2.5, 3.8*

Quick Survey *Sessions 1.2, 1.4, 1.7, 2.3, 3.1*

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 1: Please review pages 24-38 for the 4 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:

- Find at least five 2 –addend combination of ten
- Combine two small quantities by at least counting on
- Interpret (retell the action and sequence) and solve addition and subtraction story problems
- Subtract one small quantity from another

## Math Content Standards:

- (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.N.8) Understand and use the inverse relationship between addition and subtraction (e.g.,  $8 + 6 = 14$  is equivalent to  $14 - 6 = 8$  and is also equivalent to  $14 - 8 = 6$ ) to solve problems and check solutions.
- (2.N.9) Know addition facts (addends to ten) and related subtraction facts, and use them to solve problems.
- (2.P.5) Construct and solve open sentences that have variables, e.g.,  $\square + 7 = 10$ .
- (2.P.6) Write number sentences using +, -, <, =, and/or > to represent mathematical relationships in everyday situations.
- (2.M.1) Identify parts of the day (e.g., morning, afternoon, evening), days of the week, and months of the year. Identify dates using a calendar.

## Performance Standards:

**M1a** Adds, subtracts, multiplies, and divides whole numbers, with and without calculators

**M1b** Demonstrates understanding of the base ten place value system and uses this knowledge to solve arithmetic tasks

# UNIT: Number Games and Crayon Puzzles

## 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 6, M55 - Resource Binder, “Resources Masters and Transparencies”

# UNIT: NUMBER GAMES AND CRAYON PUZZLES

Investigation 1 (1.1 – 1.7)

DAYS: 8

GRADE: 1

<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> – equation, equal sign, story problem, more, fewer, combine, plus sign, ten-frame, equation, combination</p> <p><b>Work Time</b> – Student Sheets 1 –14</p> <p><b>Journal Entries</b> –</p> <p><b>Inv. 1.2</b> Show two equations that make 10. ?</p> <p><b>Inv. 1.4</b> When given 3 cubes, what strategy would you use to find out how many more cubes you need to make a tower of 10</p> <p><b>Inv. 1.6</b> What strategy did you use when playing <i>Tens Go Fish</i>?</p> <p><b>Reflection</b> – List as many combinations of 10 that you can make.</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 strategy did you use?</i></p> <p><i>How did you know which number to add to _____ to make a combination of 10?</i></p> <p><i>Can you show me another way?</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: NUMBER GAMES AND CRAYON PUZZLES

Investigation 2 (2.1 – 2.5)

DAYS: 6

GRADE: 1

<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> – more, addition</p> <p><i>Work Time</i> – Student Sheets 15-27</p> <p><i>Journal Entries</i> –</p> <p><b>Inv. 2.2</b> Solve: I have 7 crayons. 5 are blue, how many are red. Show all of your work.</p> <p><b>Inv. 2.4</b> You’re trying to make 12. What if we start with 5 and 5, how many does that get us? How many more do we need to make 12?</p> <p><i>Reflection</i> – Explain the strategy you would use to solve the following problem: I have 8 crayons. Some are blue and some are red. I have more red crayons, how many of each could I have?</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 strategy did you use?</i></p> <p><i>How did you know which number to add to _____ to make a combination of 10?</i></p> <p><i>Can you show me another way?</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: NUMBER GAMES AND CRAYON PUZZLES

Investigation 3 (3.1 – 3.8)

DAYS: 9

GRADE: 1

<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> – sum, add, minus, count on, count back, count up, count all</p> <p><i>Work Time</i> – Student Sheets 28-43</p> <p><i>Journal Entries</i> –</p> <p><b>Inv. 3.1</b> If you added the numbers <math>6 + 1 + 4</math>, which two numbers would you add first and why?</p> <p><b>Inv. 3.3</b> What strategy would you use to add <math>8 + 4 = ?</math></p> <p><b>Inv. 3.6-</b> What strategy would you use to subtract <math>7 - 3 = ?</math></p> <p><i>Reflection</i> – Name one similarity and one difference between addition and subtraction.</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 strategy did you use?</i></p> <p><i>How did you know which number to add to _____ to make a combination of 10?</i></p> <p><i>Can you show me another way?</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 addition and subtraction. It is written in MCAS form to give students the experience of answering an open-response question.

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

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

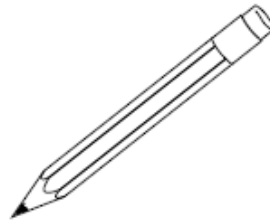
## End-of-Unit Project

- **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.**

Solve each problem. Record your work.

Write an equation.

- 1.** Sam had 13 pencils. His friend gave him 4 more pencils. How many pencils did Sam have?



- 2.** Kim had 15 balloons. She gave away 7 of them. How many balloons did she have left?



# On-Demand Assessments

(To be filed in portfolio)

## Number Games and Crayon Puzzles 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: NUMBER GAMES AND CRAYON PUZZLES

## On-Demand Assessments

GRADE: 1

### On-Demand Assessments (P)

#### Number Games and Crayon Puzzles 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:** (no On-Demand)\*\*

**Inv. 2:** Resource Binder: Session 2.5, M39

**Inv. 3:** Resource Binder: Session 3.7, M48

\*Assessment Checklists should be kept with tracking sheets.(if there is an assessment that we are asking them to use

**\*\*Please refer to the section in the Teacher's Unit Guide entitled, "Professional Development" for examples of student work for each assessment.**

# Assessment Checklist: Counting On



M48

Unit 6

Sessions 3.3, 3.6, 3.7

Student	Counts On		Comments	Known Combinations
	Yes	No		

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Name \_\_\_\_\_

Date \_\_\_\_\_



**Number Games and Crayon Puzzles**

## Assessment: Ten Crayons in All

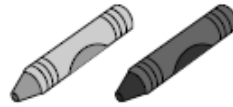
Solve the problem. Show your work.

I have 10 crayons.

Some are red. Some are blue.

How many of each could I have?

How many red? How many blue?



Find as many combinations as you can.



# 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 mathematical 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 mathematical 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