# Name

##

##  Grade 5 Mathematics Extension Menu

**Concept and/or Topic: Probability and Statistics**

**Directions: Choose** a learning activity from one square to complete. If you choose the square, “Write your idea here,” please see the teacher with your idea first. **Circle**the number of the learning activity you choose.

**Turn in**this paper with your work.

|  |  |  |
| --- | --- | --- |
| 1. **Select** a category (either # of pets or # of siblings). **Collect** data from your classmates. **Record** data and organize results into a bar graph. Go to another class and **collect** data using the same category. **Create** a double bar graph to show results from both classes. **Summarize** the data from each graph. **Display** your graphs and summaries in a booklet format. | 2. **Organize** 3 brown bags, using the following guidelines:1. Include 20 candies in each bag so that each bag has different amounts of the 2 types of candies. Example: Bag 1 could have 8 butterscotch and 12 peppermint candies).
2. **Label** each bag (1, 2, 3).
3. **Record** the ratio of types of candies in each bag on index cards but do not include the bag numbers on the cards.

Switch bags with a partner. **Use** the *Mystery Candy Bags* record sheet to **conduct** the experiment. Using what you know about probability, **determine** which bag matches with each ratio index card. **Summarize** the results. |  3. **Read** the newspaper and **locate** data displays such as graphs, charts, or plots. **Select** at least 4 data displays and cut them out. **Use** the *Question Cubes* to develop at least 3 questions per graph. **Devise** questions that will require another person to analyze data, solve problems, and make predictions about the data. **Create** an answer key for your 12 questions. |
| 4. **Plan** and **design** a math game that includes probability questions or events. **Select**a theme and include the following:* a spinner with 4 equal sections labeled A, A, B, C, so that A has a probability of  or
* rules
* directions
* materials (such as game pieces, question cards, game board)
 | 5. **Write** your idea here.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 6. **Create** and **illustrate** a booklet to teach 4th graders about mean, median, mode, and range. **Provide** definitions for each measurement term. **Elaborate** with examples (written and pictorial) in order to teach younger students how to solve and apply these skills.  |

### Teacher Resource Page

Grade 5 Mathematics Extension Menu

**Concept and/or Topic: Probability and Statistics**

**Intended Purpose: Extension/Enrichment Activity**

**Standard(s) and Indicators Addressed:**

MA.500.40 KNOWLEDGE OF STATISTICS

MA.500.50 KNOWLEDGE OF PROBABILITY

Box 1

 40.05 Develop and conduct a math investigation to solve a problem

 40.10a Collect, organize and display data for given situations using line plots, stem and leaf plots, line graphs (x-axis represents time intervals), double bar graphs

 40.10c Determine and use appropriate data displays to represent and communicate information

Box 2

* 1. Conduct an experiment and make a prediction based on the outcomes of the experiment

Box 3 40.15a Read, interpret, and analyze information taken from a display of data: stem and leaf plots, line plots, double bar graphs, double line graphs, and circle graphs (expressed as whole numbers and percents)

 40.15c Use information taken from a data display to solve problems and make predictions

Box 4 50.10 Use a fraction to express the probability of a single event with equally likely outcomes (e.g. a spinner with 4 equal sections labeled A, A, B, C: A has a probability of 2/4 or ½)

Box 5 Choose your own

Box 6 40.16a Explore, invent (using models), and determine range

40.16b Explore, invent (using models), and determine mode, median, and mean (measures of central tendency)

**Organizational Tips:**

Box 1 Consider providing access to computer for students to create graphs.

Box 2 Provide the following for each student: 3 brown bags; candies or counters (40 each of 2 different types/colors); one copy of *Mystery Candy Bags*.

Box 3 Supply newspapers and question cubes. See “Questioning” category on the GT link at [www.fcpsteach.org](http://www.fcpsteach.org) for information about question cubes. Note that *USA Today* typically displays a variety of graphs.

Box 4 Provide poster paper and paper clips for spinners.

Box 5 Choose your own

Name

Mystery Candy Bags

Draw one candy from the bag at a time. Mark an X in the correct column (Candy A or Candy B). Return the candy to the bag. Repeat until you have drawn 20 candies. Make a prediction based on your outcomes as to which cards match which bag. Explain your answer. Repeat these steps for Bags 2 and 3.

Bag 1 Bag 2 Bag 3

|  |  |  |
| --- | --- | --- |
|  | Candy A | Candy B |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |
| 7 |  |  |
| 8 |  |  |
| 9 |  |  |
| 10 |  |  |
| 11 |  |  |
| 12 |  |  |
| 13 |  |  |
| 14 |  |  |
| 15 |  |  |
| 16 |  |  |
| 17 |  |  |
| 18 |  |  |
| 19 |  |  |
| 20 |  |  |

|  |  |  |
| --- | --- | --- |
|  | Candy A | Candy B |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |
| 7 |  |  |
| 8 |  |  |
| 9 |  |  |
| 10 |  |  |
| 11 |  |  |
| 12 |  |  |
| 13 |  |  |
| 14 |  |  |
| 15 |  |  |
| 16 |  |  |
| 17 |  |  |
| 18 |  |  |
| 19 |  |  |
| 20 |  |  |

|  |  |  |
| --- | --- | --- |
|  | Candy A | Candy B |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |
| 6 |  |  |
| 7 |  |  |
| 8 |  |  |
| 9 |  |  |
| 10 |  |  |
| 11 |  |  |
| 12 |  |  |
| 13 |  |  |
| 14 |  |  |
| 15 |  |  |
| 16 |  |  |
| 17 |  |  |
| 18 |  |  |
| 19 |  |  |
| 20 |  |  |

I think Bag 1 matches the I think Bag 2 matches the I think Bag 3 matches the

card with ratio \_\_\_\_\_ because… card with ratio \_\_\_\_\_ because… card with ratio \_\_\_\_\_ because…

 card \_\_\_\_\_ because…