

WAMC Lab Template

Math Concept(s): Probability

Source / Text:

Developed by: Kefa Cummings

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Date: June 21, 2022

Attach the following documents:

- Lab Instructions
 - Each student is given two Dice
 - Roll one Dice 6 times and record the results on a linear graph
 - Roll both Dice and record the results on a linear graph
 - Present results and graphs to the class, as a group

- Student Handout(s)
 - 2 Dice
 - Graph Paper to record results

- Rubric and/or Assessment Tool

Short Description (Be sure to include where in your instruction this lab takes place):

Lab Plan

Lab Title: Probability when rolling Dice

Prerequisite skills:

Understanding probability, collecting data, graphing the results

Lab objective:

To be able to identify the probability of different situations

Standards: (Note SPECIFIC relationship to Science, Technology, and/or Engineering)

Mathematics K–12 Learning Standards:

- Summarize, represent, and interpret data on a single count or measurement variable
- Summarize, represent, and interpret data on two categorical and quantitative variables
- <http://www.corestandards.org/Math/Content/6/SP/B/4/>

Standards for Mathematical Practice:

- Reason abstractly and quantitatively.
- Model with mathematics.

K-12 Learning Standards-ELA (Reading, Writing, Speaking & Listening):

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K-12 Science Standards

- N/A
- Technology
- N/A
- Engineering
- N/A

Leadership/21st Century Skills:

<p><u>21st Century Interdisciplinary themes</u> (Check those that apply to the above activity.)</p> <input type="checkbox"/> Global Awareness <input type="checkbox"/> Financial/Economic/Business/Entrepreneurial Literacy <input type="checkbox"/> Civic Literacy <input type="checkbox"/> Health/Safety Literacy <input type="checkbox"/> Environmental Literacy			
<p><u>21st Century Skills</u> (Check those that students will demonstrate in the above activity.)</p>			
<p>LEARNING AND INNOVATION</p> <p><u>Creativity and Innovation</u></p> <input type="checkbox"/> Think Creatively <input type="checkbox"/> Work Creatively with Others <input type="checkbox"/> Implement Innovations <p><u>Critical Thinking and Problem Solving</u></p> <input type="checkbox"/> Reason Effectively <input checked="" type="checkbox"/> Use Systems Thinking <input checked="" type="checkbox"/> Make Judgments and Decisions <input checked="" type="checkbox"/> Solve Problems <p><u>Communication and Collaboration</u></p> <input checked="" type="checkbox"/> Communicate Clearly <input checked="" type="checkbox"/> Collaborate with Others	<p>INFORMATION, MEDIA & TECHNOLOGY SKILLS</p> <p><u>Information Literacy</u></p> <input checked="" type="checkbox"/> Access and Evaluate Information <input checked="" type="checkbox"/> Use and manage Information <p><u>Media Literacy</u></p> <input type="checkbox"/> Analyze Media <input type="checkbox"/> Create Media Products <p><u>Information, Communications and Technology (ICT Literacy)</u></p> <input type="checkbox"/> Apply Technology Effectively	<p>LIFE & CAREER SKILLS</p> <p><u>Flexibility and Adaptability</u></p> <input type="checkbox"/> Adapt to Change <input type="checkbox"/> Be Flexible <p><u>Initiative and Self-Direction</u></p> <input checked="" type="checkbox"/> Manage Goals and Time <input checked="" type="checkbox"/> Work Independently <input checked="" type="checkbox"/> Be Self-Directed Learners <p><u>Social and Cross-Cultural</u></p> <input type="checkbox"/> Interact Effectively with Others <input type="checkbox"/> Work Effectively in Diverse Teams	<p>Productivity and Accountability</p> <input type="checkbox"/> Manage Projects <input checked="" type="checkbox"/> Produce Results <p><u>Leadership and Responsibility</u></p> <input type="checkbox"/> Guide and Lead Others <input type="checkbox"/> Be Responsible to Others

Math Council

<https://wa-appliedmath.org/>

Teacher Preparation: (What materials and set-up are required for this lab?)

Materials

- 2 dice per student
- Graph paper

Set-Up Required:

- None

Lab Organization Strategies:

Leadership (Connect to 21st Century Skills selected):

- Students will work individually to produce a graph

Cooperative Learning:

- Students will then work as a group of 4 to provide/add their individual data to the group data
- Plot a graph as a group with all four results put on to one graph (use different colors for each)

Expectations:

Students will have an understanding of probability and how to record and have knowledge of the results

Timeline:

- One to two class sessions

Post Lab Follow-Up/Conclusions:

Discuss real world application of learning from lab

- To have an understanding of probability

Career Applications

- Research, Data Collection

Optional or Extension Activities

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WAMC Lesson Plan

Name(s): Keba Cummings

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Lesson Title: Order of Operations

Date: June 22, 2022

Text: Algebra 1

STEM Correlation:

Lesson Length: 30 min

Big Idea (Cluster): Solving equations using the order of operations	
Mathematics K–12 Learning Standards: http://www.corestandards.org/Math/Content/3/OA/D/8/ http://www.corestandards.org/Math/Content/4/OA/A/3/	
Mathematical Practice(s): MP1, MP2, MP4, MP7	
Content Objectives: Students will be able to solve a variety of expressions by using the proper order of operations	Language Objectives (ELL): Students will be able to solve the problems with 90% accuracy
Vocabulary: 1. Parenthesis 2. Exponents 3. Multiplication 4. Division 5. Addition 6. Subtraction 7. Equations	Connections to Prior Learning 1. Understanding of all the operations 2. Knowledge of when to complete an operation
Questions to Develop Mathematical Thinking: <ul style="list-style-type: none">• What operation do I do first?• What numbers apply to each operation?•	Common Misconceptions: <ul style="list-style-type: none">• Solving the equation from left to right• Lumping all the like operations together first

Assessment (Formative and Summative):

- Formative: Solve an equation and turn in as an exit ticket
- Summative: End of Unit Quiz

Materials:

- Exit Ticket Equation
- Handout of equations to solve
- Pencil
- calculator

Instruction Plan:

Introduction: Have students pick up the handout and exit ticket and then find their seat. I will then ask if they have any questions before we get started.

I will then go over the lesson topic and explanation. We will then get into going over examples on how to properly solve an equation using the proper order of mathematical equations.

Explore: go over a few examples of different equations to get the students comfortable with solving the equation in the proper order.

WAMC Lesson Plan

When I observe students: Walking around the room, observing the students, asking if they have any questions as some may be stuck on something. Answer and clarify the question either to the student or to the whole class.

Questions to Develop Mathematical Thinking as you observe:

1. What numbers do you use to apply to the mathematical symbol?
2. Why cant you just go from left to right?

Answers:

1. Use the numbers that are directly next to the symbols
2. You will get totally different answers

Summarize: Reiterate the importance of using the proper order when solving equations. Remind them to complete their exit ticket equation and turn in prior to the end of class

Career Application(s):

- Accountant
- Inventory
- Any job that uses math

Leadership/21st Century Skills:

21st Century Interdisciplinary themes (Check those that apply to the above activity.)

- | | | |
|---|---|---|
| <input type="checkbox"/> Global Awareness | <input type="checkbox"/> Financial/Economic/Business/Entrepreneurial Literacy | <input type="checkbox"/> Civic Literacy |
| <input type="checkbox"/> Health/Safety Literacy | <input type="checkbox"/> Environmental Literacy | |

21st Century Skills (Check those that students will demonstrate in the above activity.)

LEARNING AND INNOVATION

Creativity and Innovation

- Think Creatively
- Work Creatively with Others
- Implement Innovations

Critical Thinking and Problem Solving

- Reason Effectively
- Use Systems Thinking
- Make Judgments and Decisions
- Solve Problems

Communication and Collaboration

- Communicate Clearly
- Collaborate with Others

INFORMATION, MEDIA & TECHNOLOGY SKILLS

Information Literacy

- Access and Evaluate Information

Use and manage Information

- Use and manage Information
- Media Literacy
- Analyze Media
- Create Media Products
- Information, Communications and Technology (ICT Literacy)
- Apply Technology Effectively

LIFE & CAREER SKILLS

Flexibility and Adaptability

- Adapt to Change
- Be Flexible

Initiative and Self-Direction

- Manage Goals and Time
- Work Independently
- Be Self-Directed Learners

Social and Cross-Cultural

- Interact Effectively with Others
- Work Effectively in Diverse Teams

Productivity and Accountability

- Manage Projects
- Produce Results

Leadership and Responsibility

- Guide and Lead Others
- Be Responsible to Others

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