Pumpkin and Ghost Counters

Mathematics
Kindergarten

Instructional Strategies:
Groupwork, Directed Teaching, Critical Thinking

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Objectives:

* Students will be active and attentive during lesson and activity.
* Students will be able to correctly answer questions asked by the teacher.
* Students will not be disruptive during lesson or activity.
* Student will be able to work cooperatively with other members of the class in their seats and on the carpet.
* Students will demonstrate their knowledge on one-to-one correspondence.
* Students will demonstrate their knowledge on equality of values.
* Students will be able to determine the difference between more than and less than.
* Students will be able to add and subtract the counters.
* Students will show their knowledge of patterns by creating their own pattern using the pumpkin and ghosts counters.
* Students will demonstrate their knowledge of probability by guessing the number of pumpkin counters vs. ghost counters.

PA Academic Standards:

* **Academic Standards for Reading, Writing, Speaking, and Listening**

  1.6.3. Speaking and Listening

  A. Listen to others.
  - Ask pertinent questions.

  D. Contribute to discussions.
  - Ask relevant questions.
  - Respond with relevant information or opinions to questions asked.
  - Listen to acknowledge the contributions of others.
  - Give reasons for opinions.
  - Summarize, when prompted.

  E. Participate in small and large group discussions and presentations.
  - Participate in everyday conversation.

* **Academic Standards for Mathematics**

  2.1.3. Numbers, Number Systems and Number Relationships

  A. Count using whole numbers.

  B. Use whole numbers and fractions to represent quantities.

  C. Represent equivalent forms of the same number through the use of concrete objects.

  G. Use concrete objects to count, order and group.

  H. Demonstrate an understanding of one-to-one correspondence.

  I. Apply place-value concepts and numeration to counting, ordering and grouping.

  J. Estimate, approximate, round or use exact numbers as appropriate.

2.2.3. Computations and Estimation

A. Apply addition and subtraction in everyday situations using concrete objects.

B. Solve single- and double-digit addition and subtraction problems with regrouping in vertical form.

E. Use estimation skills to arrive at conclusion.

2.4.3. Mathematical Reasoning and Connections

A. Make, check and verify predictions about the quantity, size and shape of objects and groups of objects.

2.5.3. Mathematical Problem Solving and Communication

A. Use appropriate problem-solving strategies,

B. Determine when sufficient information is present to solve a problem and explain how to solve a problem,

C. Select and use an appropriate method, materials and strategy to solve problems, including mental mathematics, paper and pencil and concrete objects.

2.6.3. Statistical and Data Analysis

C. Predict the likely number of times a condition will occur based on analyzed data.

2.7.3. Probability and Predictions

A. Predict and measure the likelihood of events and recognize that the results of an experiment may not match predicted outcomes,

D. Analyze data using the concepts of largest, smallest, most often, least often and middle.

Cross-curricular Integration:

* none

Materials:

* a 1 or 2 pound bag of large dried white lima beans
* orange spray paint
* a thin black permanent marker (Sharpie)
* Pumpkin/Ghost Worksheet

Instructional Procedure:

Anticipatory Set:

* Students will be randomly grouped for this activity.
* One student will be assigned to pass out the activity sheets.
* The groups will be assigned to find a quiet place in the room.

* The teacher will pass out the pumpkin/ghost counters.

Developmental Activities:

* One to one correspondence

  Give each student a set of pumpkin/ghost counters. Have students shake the counters in a small cup and spill them on the table. Have the students look at how many counters fell ghost side up vs. how many fell pumpkin side up. Can they match up the ghosts with pumpkins? Are there more ghosts? More pumpkins? Are the amounts of each equal? Students will record their results in #1.

* Counting and comparing

  Give each student a set of pumpkin/ghost counters. Have students shake the counters in a small cup and spill them on the table. Have the students look at how many counters fell ghost side up vs. how many fell pumpkin side up. Have them count the number of ghosts, the number of pumpkins and write a greater than or less than equation for each time they roll and spill. Students will record their results in #2.

* Addition or subtraction sentences

  Using the same method of roll and spill as above, have the students create addition or subtraction equations (Ex 3 ghosts, 2 pumpkins -- 3+2= 5 or 3-2=1) to show how many altogether or how many more. Students will record their results in #3.

* Patterning

  Using the counters, have students make up AB, AAB, ABB or similar patterns. Students will record their results in #4.

* Probability

  Guess and record how many times will there be: more ghosts than pumpkins, pumpkins than ghosts, and the same number of each, all of one or the other. On a recording sheet have groups of students work together to "spill the beans" a number of times and record how many times each event occurs. What conclusions can the class draw? Students will record their results in #5.

Closure:

* Students will discuss their findings with another group to see that there are different results each time.
* Students will be asked to clean up their supplies and return them to the back table.

Assessment:

* Students will be informally assessed on their participation in class discussion.
* Students will be assessed on their ability to cooperatively work within a small and large group.
* Students will be assessed on their ability to listen attentively to the teacher during lecture and while giving directions.
* Students will be assessed on their knowledge of mathematical operations.

Special Needs Adaptations:

* None within the class