

Jack And the Beanstalk Estimation

Summary

Students will use estimation, and pencil-paper calculations to help Jack and his mother solve a variety of life problems. The students will solve problems using various math operations, ie; addition, subtraction, and measurement.

Time Frame

2 class periods of 45 minutes each

Group Size

Small Groups

Life Skills

Employability

Materials

Video: Mathica's Workshop 1 'Help wanted'; Story: Jack and The Beanstalk; Jelly beans; Task cards; Supplies for Centers * Center 1;bean seeds; baby food jars; cotton balls; observation sheet * Center 2;2' x 3' cards (teacher prepares); pencil; paper; jelly beans * Center 3;gallon sized ziplock bags; jelly beans and other small objects for counting (edible, non-edible); calculator; pencil paper * Center 4;pencil; paper; newspaper ads; ice cream bucket; jelly beans * Center 5;pencil; paper; ruler; crayons or markers

Background for Teachers

Students need to know how to add and subtract with two 3 digit numbers. They also need to know how to borrow and carry numbers. Vocabulary: estimate- to find an answer that is close to the exact answer; germinate- to start developing; to sprout, as from a seed

Instructional Procedures

VIEWING ACTIVITIES: Segment 1: START the video at the beginning. The first part of the video gives background knowledge about the program 'Mathica's Workshop'. PAUSE after Mathica says, 'What do you think the workshop is used for?' At this point illicit a group discussion and write student predications on the chalkboard. Segment 2: After the student discussion, FAST FORWARD the video to the frame where Mathica is looking at the bottle of Jack's beans. She says, 'Wait a minute, Jack's magic beans.' Push PLAY. This segment talks about estimation. When a big voice booms, 'estimation' and the word 'estimation' appears on the screen push PAUSE. Write the word 'estimation' on the board and ask students what it means. Afterward have students study the bottle of beans in the video and guess how many beans are in the bottle. Ask students to share methods they used to guess how many beans were in the bottle. Count the jelly beans in the classroom jar. The students with the closest guess wins the estimation jar. They are to return the jar filled with a different item and the estimation guessing continues. This activity can be repeated throughout the year. Segment 3: Push PLAY. This segment shows magical ways to organize items for counting. PAUSE after Mathica says, 'Who are you?' Tell the students they are going to learn how important estimation can be? POST-VIEWING ACTIVITIES: Magic Bean Estimation Centers- Place students in cooperative groups, four students/group. Each group will rotate through five learning centers spending 15-20 minutes at each site. The teacher will ring a bell when each session ends. Each station in the center includes a task card with instructions, and a packet of supplies. Students are to follow instructions on the task

cards to complete the activities. Magic Bean Estimation Centers include: 1. Estimate a bean's growth. 2. Estimation magic bean story problems. 3. Counting estimation- How many beans? 4. Subtraction estimation- How many groceries for a hen? 5. How Far To Giantsville? Task Card 1 4th Grade Materials: beans, baby food jars, cotton balls, and observation sheet. Task: Estimate a Beans Growth Time Allotted: 20 minutes Jack broke his arm while climbing down the beanstalk, and Jack's mother is beside herself. Students can help by planting a new bean stalk, remember Jack had to cut down the old one when the nasty giant chased him. Each student will plant 3-5 bean seeds in a baby food jar. They are to fill out the enclosed observation sheet and predict and make daily observations of the changes that occur. 1. Fill baby food jar with 5-6 cotton balls. 2. Place 3-5 seeds in the jar so they are visible from the outside of the jar. 3. Pour about 1/4 cup of water over seeds & cotton balls. Set plants near a window. 4. Fill out the observation sheet. 5. Observe seeds and record information each day. NAME _____ OBSERVATION CHART Task 1 Date seed was planted _____ DATA 1. How many seeds germinated. 2. How many days till seeds germinated? 3. Which day did you observe plant growth? Day 3 Day 5 Day 7 Day 9 Day 11 ESTIMATION ACTUAL Task Card 2 4th Grade Materials: 2' x 3' cards, pencil, paper, jelly beans Task: Estimation Magic Bean Story Problems Time Allotted: 20 minutes Review the book Jack And The Beanstalk. Write story problems that involve estimation and calculation to help Jack and his mom solve the problems they face. See the following example, IE: The vine leading to the giants castle was 42 miles high. Jack had to walk 37 more miles to the castle. Mentally estimate how many miles Jack went all together. Calculate the problem. 1. Review the story, Jack And The Beanstalk. 2. Take five minutes and write story problems, one story problem per card. The problems should require estimating and calculating. Using addition, subtraction, multiplication or division. 3. Put the estimation and calculation answers on the back of the card. 4. Shuffle the cards and place in a pile, face up, in the center of a table. 5. Students will draw a card and solve the problem. If they wrote the card they will pass it to another person who will solve the problem. 6. The other students in the group will check the solution and reteach if necessary. 7. The student who solved the problem gets a jelly bean treat. 8. Repeat steps 5-7 with the next person in the group. Task Card 3 4th Grade Materials: five, gallon sized ziplock bags, numbered 1-5, jelly beans or other small objects for counting (edible or non-edible), calculators, pencil paper Task: Counting Estimation- How Many Beans? Time Allotted: 20 minutes Each of the bags represent the beans Jack received when he traded his mother's cow. Estimate, then count how many beans Jack received. Group Leader: The group leader says, 'Silly Jack traded a cow for his mother's beans. Poor, poor Jack bet his mother's mad.' Jobs: Group leader and team members. 1. Study the five bags filled with jelly beans (or items representing beans.) 2. Estimate how many items are in each bag. On a piece of paper numbered 1-5 write an estimation for each bag. Fold the paper in half so no one can see the numbers. 3. After everyone has written down their estimations count the items in each bag. 4. The person making the closest estimations gets a jelly bean to eat. 5. Determine different ways to group and practice recounting them. IE: place them in sets of 2, 4, etc. Task Card 4 4th Grade Materials: pencil, paper, newspaper ads, ice cream bucket, jelly beans Task: Subtraction Estimation- How many Groceries will a hen buy? Time Allotted: 20 minutes Jack's mom sold the hen that lays a golden egg for 30. This is the last of her money. There is no food left in the house. Help mom estimate how many items she can buy without spending more than 30. 1. Cut up newspaper grocery ads, each ad is on a separate paper. 2. Place ads in an ice cream bucket and mix them up. 3. Give each member a sheet of paper with 30.00 written at the top. 4. Sit in a circle. Pass around the bucket. Pick an ad, without looking and quickly pass the bucket to the next person. 5. Mentally keep track of spending. When a person estimates they have reached their limit of 30, they are to call out 'golden egg.' 6. The rest of the students may continue drawing out of the bucket until they reach their 30 limit and call out 'golden egg.' 7. With pencil and paper calculate purchases. How close was the estimation to the actual amount? 8. The total closest to 30. without going over is the winner. Give them a jelly bean to eat. Task Card 5 4th Grade Materials:

pencil, paper, ruler, crayons or markers Task: How Far to Giantsville Jack can't remember how to get to the Giant's home. He wants to go back and apologize to the giant's wife for stealing from them. Draw a map and mark distances along the route. 1. Allow 10 minutes for this part of the activity. Everyone draw a map showing the way back to the giants. Mark the distance from one location to the next. IE: From Jack's house to the beanstalk 1 mile, from the beanstalk through the clouds 10 miles, etc. (Use any type of measurement for distance, IE: miles, yards, inches, etc. Note: It will be easiest to use the same measurement throughout the map.) 2. Pass your map to the person sitting next to you. Estimate the total distance and write the figure on a piece of paper. Use pencil and paper to calculate the actual distance. Circle the answer. How close was the estimation to the actual amount? 3. Pass the map to the next person in the group and repeat the steps.

Extensions

OTHER CONNECTIONS Language Arts- Use writing extensions to the book, Jack And The Beanstalk, For example: a different ending, from another character's perspective, the giants, etc. P.E.- Have students participate in various physical activities, such as running, jumping, skipping, etc. Ask students to estimate the distance before completing the task. Complete the activity then measure the distance. Students are to compare estimations with calculations.

Assessment Plan

ASSESSMENT Teacher observation during student participation will be one method of assessment. The projects completed in the learning centers will serve as another. ACTION PLAN To bring closure to the lesson ask students why estimation is important. Have students tell ways they use estimation in their daily life. PRODUCT CHOICES Students rotate through the Magic Bean Estimation Centers. Centers include: 1. Estimate a bean's growth- students plant and observe the growth of a bean. 2. Estimation magic bean story problems- students write, estimate, and calculate story problems. 3. Counting estimation- How many beans?- students practice estimating and counting various items. 4. Subtraction estimation- How many groceries for a hen?- students use subtraction in a real life situation. 5. How Far To Giantsville?- students construct maps and use estimation and calculation while measuring distance on a map.

Authors

[TERRI DENNEY](#)