Annotated 3 - 5 Mathematics Student Work Samples

Scoring Criteria

PERFORMANCE INDICATOR	BEGINNING	DEVELOPING	PROFICIENT	EXPANDING
#1 Mathematical Reasoning and Communication: E Precisely communicate mathematical understandings and connections using a variety of representations. (MP1)	Communicate understanding using language and representations.	Communicate mathematical understanding and connections using mathematical language and representation(s).	Clearly and logically communicate mathematical understanding and connections using technical mathematical language and appropriate representation(s).	Enhance communication through the intentional sequencing and presentation of ideas and the strategic selection and use of representations.
#4 Functions & Algebraic Reasoning: A Represent and solve problems involving all four operations (of all problem types). (3.OA.3, 8; 4.OA.1, 2, 3)	Identify the appropriate operation(s) in situations.	Create a model to represent problems involving all four operations.	Create and use an appropriate model to represent and solve problems involving all four operations.*	Create multiple representations of problems involving all four operations and use them to justify a solution.
Problem Solving and Critical Thinking: 2 Identify, collect and analyze relevant information.	Make observations about a problem or situation.	Describe the problem and identify the parts of the problem.	Summarize the problem, identify variables, and analyze how elements of the situation define the problem.	Evaluate the relevance and importance of elements that define the problem and limit the solutions.
Note: problem(s) do not need to require students to use all four operations but students should be required to decipher between and select from the four operations.				

Student Work Sample #1 (page 1 of 2)

Estimate

I think our pumpkin weighs	0	pounds
I think our pumpkin weighs	900	grams
I think our pumpkins is	7	inches tall
I think our pumpkin is	14	centimeters tall
I think our pumpkin is	12	inches around
I think our pumpkin is	24	centimeters around
I think our pumpkin has	500	seeds

Data

Our pumpkin weighs	2.39	pounds
Our pumpkin weighs	1 kg 10 g.	grams 1,016g
Our pumpkins is	6	inches tall
Our pumpkin is	14	centimeters tall
Our pumpkin is	16 ᵇgram	inches around
Our pumpkin is	41	centimeters around
Our pumpkin has	386	seeds

Student Work Sample #1 (page 2 of 2)

Extend your math thinking

1) If you were to distribute the seeds equally to a group of 4 people how many seeds would each person get? How many seeds would be left over? Show your work

```
  96
  96
+ 96
 288
+ 96
 384
```

Each person would get 96 seeds. I know this because when we tried numbers in the 90's we were close so we tried more, there are 2 extra seeds

2) Do you think there is a connection between the size of the pumpkin and the number of seeds the pumpkin has and what is your evidence of this connection?

Yes, because our ~~we~~ seeds affected our weigh of the pumpkin. The hight, and how big it was around gives more space for more seeds.

#1 Mathematical Reasoning and Communication: E - *Proficient* - Representation of 4 groups is connected to the mathematical representation. Explanation is provided about process.
#4 Functions & Algebraic Reasoning: A - *Proficient* - Appropriate models and operations lead to the correct solution.
Problem Solving and Critical Thinking: 2 - Not measurable in abbreviated version of the task

Pumpkin Math

Estimate

I think our pumpkin weighs	2	pounds	s
I think our pumpkin weighs	57	grams	700
I think our pumpkins is	10	inches tall	0
I think our pumpkin is	32	centimeters tall	
I think our pumpkin is	15	inches around	
I think our pumpkin is	36	centimeters around	
I think our pumpkin has	18	seeds	

Data

Our pumpkin weighs	2.1 p	pounds	
Our pumpkin weighs	1kg 200g	grams 1,200	
Our pumpkins is	8'/2	inches tall	
Our pumpkin is	22	centimeters tall	
Our pumpkin is	17	inches around	
Our pumpkin is	44	centimeters around	
Our pumpkin has	470	seeds	

Student Work Sample #2 (page 2 of 2)

Extend your math thinking

1) If you were to distribute the seeds equally to a group of 4 people how many seeds would each person get? How many seeds would be left over? Show your work.

$$470 \div 4 = 118$$

```
 -70        2 seeds      118
 -          left over.    118
 -70                      118
 +70                    + 118
                          479
```

2) Do you think there is a connection between the size of the pumpkin and the number of seeds the pumpkin has and what is your evidence of this connection?

Yes, because

if a Pumpkin is
big it will grow more
seeds because it
has more space.

#1 Mathematical Reasoning and Communication: E - *Developing* - Representations and language used to communicate mathematical understanding - connection between division, multiple addition, and remaining seeds needs more clarity
#4 Functions & Algebraic Reasoning: A - *Developing* - Model created to represent the problem using appropriate operations - dividing seeds into four equal groups, 118 is a rounded figure
Problem Solving and Critical Thinking: 2 - Not measurable in abbreviated version of the task

Pumpkin Math

Estimate

I think our pumpkin weighs	3	pounds
I think our pumpkin weighs	12	grams
I think our pumpkins is	3	inches tall
I think our pumpkin is	20	centimeters tall
I think our pumpkin is	2½	inches around
I think our pumpkin is	28	centimeters around
I think our pumpkin has	15	seeds

Data

Our pumpkin weighs	2.94	pounds
Our pumpkin weighs	1kg 800g 1 x͟	grams 1.800
Our pumpkins is	8 ½	inches tall
Our pumpkin is	218	centimeters tall
Our pumpkin is	16	inches around
Our pumpkin is	40	centimeters around
Our pumpkin has	332	seeds

Student Work Sample #3 (page 2 of 2)

Extend your math thinking

1) If you were to distribute the seeds equally to a group of 4 people how many seeds would each person get? How many seeds would be left over? Show your work.

4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, 64, 68, 72, 76, 80, 84, 88, 60

×4
———
300

each kid gets eighty seeds.

80
80
+ 80
80
———
330

2) Do you think there is a connection between the size of the pumpkin and the number of seeds the pumpkin has and what is your evidence of this connection?

I think there is not a connection with the size of the pumpkin because none of the sizes of the pumpkin add up to the seeds or the numbers do not add up to my answer.

#1 Mathematical Reasoning and Communication: E - *Developing* - Representations and language used to communicate mathematical understanding - student thinking is evident, but no mention of remaining seeds

#4 Functions & Algebraic Reasoning: A - *Developing* - Model created to represent the problem using appropriate operations - multi-step model could lead to correct responses

Problem Solving and Critical Thinking: 2 - Not measurable in abbreviated version of the task

Pumpkin Math

Estimate

I think our pumpkin weighs	18·7	pounds
I think our pumpkin weighs	198	grams
I think our pumpkins is	7 in	inches tall
I think our pumpkin is	13 cm	centimeters tall
I think our pumpkin is	18 in	inches around
I think our pumpkin is	30 cm	centimeters around
I think our pumpkin has	~~100~~	seeds

Data

Our pumpkin weighs	2 65	pounds
Our pumpkin weighs	1kg 90 g 1000	grams 1090
Our pumpkins is	7 in	inches tall
Our pumpkin is	16 cm	centimeters tall
Our pumpkin is	18 in	inches around
Our pumpkin is	43 cm	centimeters around
~~has~~		
Our pumpkin has	93	seeds

Student Work Sample #4 (page 2 of 2)

Extend your math thinking

1)   If you were to distribute the seeds equally to a group of 4 people how many seeds would each person get? How many seeds would be left over? Show your work.

22
-22
——
4
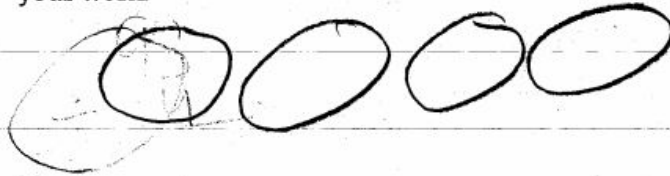
17   17   34   19   19   38
+17   +17   +34   +19   +19   +38
——   ——   ——   ——   ——   ——
34   34   68   38   38   76

2)   Do you think there is a connection between the size of the pumpkin and the number of seeds the pumpkin has and what is your evidence of this connection?

#1 Mathematical Reasoning and Communication: E - *Beginning* - Representations convey an understanding of four equal groups, but are incomplete lack an explanation of process
 #4 Functions & Algebraic Reasoning: A - *Developing* - Models created to represent the problem using appropriate operations - multi-step model could lead to correct responses
Problem Solving and Critical Thinking: 2 - Not measurable in abbreviated version of the task

Estimate

I think our pumpkin weighs	6.2	pounds
I think our pumpkin weighs	19	grams
I think our pumpkins is	7	inches tall
I think our pumpkin is	16	centimeters tall
I think our pumpkin is	12	inches around
I think our pumpkin is	30	centimeters around
I think our pumpkin has	800	seeds

Data

Our pumpkin weighs	2.65	pounds
Our pumpkin weighs	1 kg 90 grams	grams
Our pumpkins is	7 inches	inches tall
Our pumpkin is	16 centimeters	centimeters tall
Our pumpkin is	18 inches	inches around
Our pumpkin is	45 centimeters	centimeters around
Our pumpkin has	93	seeds

Student Work Sample #5 (page 2 of 2)

Extend your math thinking

1) If you were to distribute the seeds equally to a group of 4 people how many seeds would each person get? How many seeds would be left over? Show your work.

$$\begin{array}{r} 93 \\ \div\ 4 \\ \hline 21 \end{array}$$

$$\begin{array}{r} 21 \\ +21 \\ +31 \\ +31 \\ \hline 94 \end{array}$$

2) Do you think there is a connection between the size of the pumpkin and the number of seeds the pumpkin has and what is your evidence of this connection?

I think it does have a connection because the larger pumkim then more seeds grows

---

#1 Mathematical Reasoning and Communication: E - *Beginning* - While representations are present, a link between them has not been made

#4 Functions & Algebraic Reasoning: A - *Beginning* - Models are in conflict - one shows an understanding of equal groups (93/4), but the other two do not reflect an understanding of the need for equal groups

Problem Solving and Critical Thinking: 2 - Not measurable in abbreviated version of the task