

HALLOWEEN SCARIES THREE-ACT TASK

Big Idea: Numbers represent quantities that can be decomposed into smaller parts.



Curricular Competencies:

Although students will demonstrate many of these competencies during the three acts, when thinking about the learning you decide to focus on, it is recommended that you select one competency to look closely at. For example, in term one many teachers focus on communicating; therefore, for this three act task teachers may decide to place emphasis on looking at how students are able to represent their mathematical ideas in concrete, pictorial, and symbolic forms.

Reasoning and Analyzing

- *use reasoning to explore and make connections*
- *estimating reasonably*
- *developing mental math strategies and abilities to make sense of quantities*
- *model mathematics in contextualized experiences and explore the utility of mathematics as a tool for solving real-life problems*

Understanding and Solving

- *visualizing to explore mathematical concepts*
- *develop, demonstrate and apply mathematical understanding through play, inquiry and problem solving.*
- *develop and use multiple strategies to engage in problem solving*

Communicating and Representing

- *communicate mathematical thinking in many ways*
- *explain and justify*
- *represent mathematical ideas in concrete, pictorial, and symbolic forms*

Connecting and Reflecting

- *reflect on mathematical thinking*
- *connect mathematical concepts to each other*

Content: Addition to 10 using multiple strategies.

ACT ONE:

What did you notice?	What do you wonder?

FOCUS QUESTION:

How many candies were in the box?

Estimating:

A too low estimate:	A too high estimate:

ACT TWO:

What else do you need to know to answer the question? What information would you like to have?



Provide students with materials they can use to model the problem. These could include:

- ten-frames
- unifix cubes (try not to put out both orange and brown cubes)
- counters all the same colour (e.g., pebbles)
- numbers (e.g., wooden, plastic, dice)
- number lines
- paper and pencils

ANTICIPATING STUDENT THINKING:

Make note of who uses which strategy and take pictures or video so that these can be shared with the class as a whole. Please note that students may represent these strategies concretely using materials, representationally through pictures, or abstractly through numbers and symbols on paper and just because they may choose to use concrete materials, does not mean the strategy is not sophisticated.

Some potential STRATEGIES students might use:

Make note of who uses which strategy and take pictures or video so that these can be shared with the class as a whole.

- Who **counted all**?
 - Do students have one-to-one correspondence? If they make a mistake do they catch themselves and self-correct?
- Who **counted on**?
 - Are students counting on from the largest quantity?
- Who saw a **friendly ten less one**?
e.g., It almost fills the ten frame, which I know is ten so one less in nine.
- Who used doubles/**near doubles strategy**?
e.g., $4 + 4 = 8$
8 and one more is nine.

Guiding questions for the teacher to consider:

- How are students engaging in the problem solving?
- What do they notice? What do they wonder?
- Are the students able to ask questions?
- Once the students engage with problem, are they able to mathematically model the situation?
 - What tools/model to they select to represent the question? (e.g. ten frames, number lines, pictures, counters, equations)
 - Can they represent their concrete models pictorially?
 - Are they able to connect numbers and symbols to their representations?
- Are the students able to orally explain their thinking? Are they sharing ideas with their peers?
- When different strategies have been shared, are students able to make connections between similar strategies and the representations used?

ACT THREE:

Gather the students as a whole class and share photos and videos taken via the projector with the class. Ask students to orally explain the strategies they used. Determine which strategies you want to highlight and/or compare.

Sharing

- Build a class anchor chart with the different strategies students used.

REVEAL the answer!

Guiding questions for the teacher to consider:

- How are students engaging in the problem solving?
- What do they notice? What do they wonder?
- Are the students able to ask questions?
- Once the students engage with problem, are they able to mathematically model the situation?
 - What tools/model do they select to represent the question? (e.g. concrete materials like base ten blocks or ten frames, pencil and paper)
 - Can they represent their concrete models pictorially?
 - Are they able to connect numbers and symbols to their representations?
- Are the students able to orally explain their thinking? Are they sharing ideas with their peers?
- When different strategies have been shared, are students able to make connections between similar strategies and the representations used?

Summarize the learning:

Self-Reflection:

Strengths: What worked (What strategies did you use to work toward a solution)?

Stretches: What was difficult?

Next steps: What would you do differently next time? Was anyone inspired by someone else's strategy?

Moving Forward:

Continue to explore different opportunities to add to 10.