



## Interpret and Interrogate Feedback

**What is your current role?**

**Describe your experience with Routines for Reasoning, check all that apply**

- I am learning about Routines for Reasoning for the first time today
- I have read Routines for Reasoning: Fostering the Mathematical Practices in All Students
- I have seen Routines for Reasoning in professional learning before
- I have seen one or more routines in action in classrooms
- I have implemented one or more routines for reasoning in PD or classrooms
- (other – please describe)

**The Interpret and Interrogate routine focuses on two aspects of the modeling process – making sense of situations and analyzing models. Comment on how that thinking is developed through the routine.**

**What changes/edits do you suggest and why do you recommend them?**

**What aspects of the routine are ‘must keeps’ and why?**

# Interrogate and Interpret

<p style="text-align: center;"><b>Interrogate &amp; Interpret</b></p> <p><b>WHAT:</b> Consider the mathematics of a real world situation, and analyze a model that represents the situation</p> <p><b>WHY:</b> To interpret and engage in the real world with a mathematician's eye. To develop a bank of questions to ask yourself that are critical in the mathematical modeling process.</p>	<p style="text-align: center;"><b>Interrogate and Interpret</b></p> <div style="display: flex; justify-content: space-around; align-items: center;"> </div> <div style="display: flex; justify-content: space-around; text-align: center; font-size: 8px;"> <div>Make Sense</div> <div>Interrogate the Situation</div> <div>Interpret the Model</div> <div>Analyze and Adapt Models</div> <div>Reflect on Learning</div> </div>	<p style="text-align: center;"><b>Make Sense of the Situation</b></p> <p>Ask Yourself:</p> <ul style="list-style-type: none"> <li>▪ What's the question I'm exploring?</li> <li>▪ What about the context do I need to consider?</li> </ul> <p style="text-align: right; font-size: 8px;"><i>How many square inches of pizza will everyone in this class eat in their lifetime?</i></p>	<p style="text-align: center;"><b>Interrogate the Situation</b></p> <div style="display: flex; justify-content: space-around; align-items: center; font-size: 8px;"> <div>Pair </div> <div>Tour </div> <div>Pair </div> </div>
<p style="text-align: center;"><b>Share Interpretations &amp; Interrogate the Context</b></p> <p>Standing with your partner, share your interpretations of the context and together create a list:</p> <ul style="list-style-type: none"> <li>▪ Important quantities are...</li> <li>▪ It will be helpful to know...</li> </ul> <p style="text-align: right; font-size: 8px;"><i>How many square inches of pizza will everyone in this class eat in their lifetime?</i></p>	<p style="text-align: center;"><b>Consider Classmates' Interpretations</b></p> <p>Tour the room and read others' lists. Consider what you'd add to your own.</p> <p>Ask yourself:</p> <ul style="list-style-type: none"> <li>▪ Have they considered something we should also consider?</li> <li>▪ Have they (or we) made assumptions?</li> </ul> <p style="text-align: right; font-size: 8px;"><i>How many square inches of pizza will everyone in this class eat in their lifetime?</i></p>	<p style="text-align: center;"><b>Consider Classmates' Interpretations</b></p> <p>Return to your chart, reflect and refine</p> <ul style="list-style-type: none"> <li>▪ Place a + next to key ideas</li> <li>▪ Place a - next to ideas less relevant</li> <li>▪ Describe quantities as 'The number/amount of...'</li> <li>▪ Articulate questions as quantities 'How much/many...?'</li> </ul> <p style="text-align: right; font-size: 8px;"><i>How many square inches of pizza will everyone in this class eat in their lifetime?</i></p>	<p style="text-align: center;"><b>Interpret the Model</b></p>
<p style="text-align: center;"><b>Interpret the Model</b></p> <p>Ask yourself:</p> <ul style="list-style-type: none"> <li>▪ Where/how does the model represent quantities?</li> </ul> <div style="font-size: 8px;"> <p>What is the starting amount of pizza someone eats in their life time?</p> <p>0.01's pizza goes with model! The average pizza class 6,000 pizzas (Reported by Statista, 2019) Home source on Jan 13, 2019</p> <p>How many square inches are in the size of pizza?</p> <p>12 inch pizza 18 inch pizza</p> <p><math>11.5 \times 8.5 \text{ inch} = 97.75 \text{ in}^2</math> <math>18 \times 14 = 252 \text{ in}^2</math></p> <p>How many people in this class? 28</p> <p><math>6,000 \times 28 = 168,000</math>  <math>\frac{168,000}{28} = 6,000</math>  <math>737,000</math></p> <p><math>132,000 \times 21 = 2,772,000 \text{ in}^2</math></p> <p><math>182 \times 3 = 546</math>  <math>254 \times 3 = 762</math>  <math>318 \times 3 = 954</math>  <math>2,772,000 \text{ in}^2 \times 3 = 8,316,000 \text{ in}^2</math></p> </div>	<p style="text-align: center;"><b>Interpret the Model</b></p> <p>Share the quantities with your partner, together identify questions you have and assumptions the model makes.</p> <p>They considered the number/amount of...</p> <p>They found the number/amount of... by...</p> <p>A question I have about the model is...</p> <p>An assumption the model makes is...</p> <div style="font-size: 8px;"> <p>1. What is the starting amount of pizza someone eats in their life time?</p> <p>0.01's pizza goes with model! The average pizza class 6,000 pizzas (Reported by Statista, 2019) Home source on Jan 13, 2019</p> <p>2. How many square inches are in the size of pizza?</p> <p>12 inch pizza 18 inch pizza</p> <p><math>11.5 \times 8.5 \text{ in}^2</math> <math>18 \times 14 = 252 \text{ in}^2</math></p> <p>3. How many people in this class? 28</p> <p><math>6,000 \times 28 = 168,000</math>  <math>\frac{168,000}{28} = 6,000</math>  <math>737,000</math></p> <p><math>132,000 \times 21 = 2,772,000 \text{ in}^2</math></p> <p><math>182 \times 3 = 546</math>  <math>254 \times 3 = 762</math>  <math>318 \times 3 = 954</math>  <math>2,772,000 \text{ in}^2 \times 3 = 8,316,000 \text{ in}^2</math></p> </div>	<p style="text-align: center;"><b>Analyze and Adapt the Model</b></p> <ul style="list-style-type: none"> <li>▪ We think the model predicts ... because...</li> <li>▪ We aren't sure the model is precise because...</li> <li>▪ The estimation impacts the outcome because...</li> </ul> <div style="font-size: 8px;"> <p>What is the starting amount of pizza someone eats in their life time?</p> <p>0.01's pizza goes with model! The average pizza class 6,000 pizzas (Reported by Statista, 2019) Home source on Jan 13, 2019</p> <p>2. How many square inches are in the size of pizza?</p> <p>12 inch pizza 18 inch pizza</p> <p><math>11.5 \times 8.5 \text{ in}^2</math> <math>18 \times 14 = 252 \text{ in}^2</math></p> <p>3. How many people in this class? 28</p> <p><math>6,000 \times 28 = 168,000</math>  <math>\frac{168,000}{28} = 6,000</math>  <math>737,000</math></p> <p><math>132,000 \times 21 = 2,772,000 \text{ in}^2</math></p> <p><math>182 \times 3 = 546</math>  <math>254 \times 3 = 762</math>  <math>318 \times 3 = 954</math>  <math>2,772,000 \text{ in}^2 \times 3 = 8,316,000 \text{ in}^2</math></p> </div>	<ul style="list-style-type: none"> <li>▪ We think the model predicts ... because...</li> <li>▪ We aren't sure the model is precise because...</li> <li>▪ The estimation impacts the outcome because...</li> </ul> <div style="font-size: 8px;"> <p>What is the starting amount of pizza someone eats in their life time?</p> <p>0.01's pizza goes with model! The average pizza class 6,000 pizzas (Reported by Statista, 2019) Home source on Jan 13, 2019</p> <p>How many square inches are in the size of pizza?</p> <p>12 inch pizza 18 inch pizza</p> <p><math>11.5 \times 8.5 \text{ in}^2</math> <math>18 \times 14 = 252 \text{ in}^2</math></p> <p>How many people in this class? 28</p> <p><math>6,000 \times 28 = 168,000</math>  <math>\frac{168,000}{28} = 6,000</math>  <math>737,000</math></p> <p><math>132,000 \times 21 = 2,772,000 \text{ in}^2</math></p> <p><math>182 \times 3 = 546</math>  <math>254 \times 3 = 762</math>  <math>318 \times 3 = 954</math>  <math>2,772,000 \text{ in}^2 \times 3 = 8,316,000 \text{ in}^2</math></p> </div>
<p style="text-align: center;"><b>Reflect on learning</b></p> <ul style="list-style-type: none"> <li>▪ Next time I consider a situation and try to mathematize it I will ask myself....</li> <li>▪ When thinking about constraints, it's important to....</li> <li>▪ When analyzing models, I learned to pay attention to....</li> <li>▪ A critical feature of modeling is....</li> </ul>			