

Annotated K - 2 Science Work Samples

Scoring Criteria

PERFORMANCE INDICATOR	BEGINNING	DEVELOPING	PROFICIENT	EXPANDING
<p>#1 Physical Sciences - Structure and Properties of Matter / Forces and Interactions: A</p> <p>Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object. (K-PS2-1)</p>	<p>Answers teacher guided questions, recalling direct information the teacher gave about the phenomenon.</p> <p>Works with peers to implement the plan.</p> <p>Identifies and gathers (records) data related to the investigation.</p>	<p>Asks questions about the phenomenon. Through answering teacher guided questions, student identifies the phenomenon.</p> <p>Works with peers to investigate the phenomenon and implement the plan.</p> <p>Identifies, gathers (records) and discusses data related to the investigation.</p>	<p>Asks and answers questions that the teacher poses and is able to explain the phenomenon.</p> <p>Works with peers to come up with a way to investigate the phenomenon and implement the plan.</p> <p>Identifies and gathers (records) data related to the investigation. Uses the collected data to compare the effect of different strengths and directions on the motion of an object.</p>	<p>Independently asks questions and answers guiding questions that the teacher poses to introduce the phenomenon. Generates multiple ways to investigate the phenomenon, as well as justifies which way might be a better way to explore than another.</p> <p>Works with peers to come up with multiple ways to investigate the phenomenon. Implements the plan, and makes changes to it as needed. Identifies and gathers (records) data related to the investigation. Analyzes the collected data to make a generalization about the effect of different strengths and directions on the motion of an object.</p>
<p>Collaboration: 2</p> <p>Contribute to a common goal by exercising flexibility and accountability.</p>	<p>Share ideas related to a common goal.</p>	<p>Listen to others and exchange ideas related to a common goal.</p>	<p>Contribute to common goal by adjusting opinions or ideas.</p>	<p>Promote flexibility and accountability in others in working toward a common goal.</p>

<p>Problem Solving and Critical Thinking: 4</p> <p>Implement a plan or process of approach using tools and information.</p>	<p>Identify tools to solve a problem.</p>	<p>Identify a range of appropriate tools to help solve a problem and begin to implement a plan or process of approach.</p>	<p>Utilize information, appropriate tools, and/or technology strategically to implement a plan or process of approach to provide a potential solution or product.</p>	<p>Demonstrate creativity and innovation in selection and use of tools and anticipate and address possible implementation challenges.</p>
<p>Problem Solving and Critical Thinking: 5</p> <p>Show flexibility and persist through frustrations; continue to revise a plan or process of approach in order to arrive at a viable solution.</p>	<p>Identify a strategy that could be used to overcome an obstacle in problem solving.</p>	<p>Make an attempt to reach a viable solution by applying a strategy.</p>	<p>Make multiple attempts, persisting as needed, to reach a viable solution by applying and adjusting varied strategies and approaches.</p>	<p>Make multiple attempts, if needed, until an effective solution is reached by applying, evaluating and adjusting strategies and approaches.</p>

Student Generated Questions and Thoughts

Scientific Method

 <p>Ask a Question</p>	<p>I Wonder...</p> <p>Which way will be the slowest? Which way will be the fastest? What no push will be like?</p>	
 <p>Make a Hypothesis</p>	<p>I think...</p> <p>It will be fun! The no push will be fast The partner push will be the fastest The no push will be the slowest</p>	
 <p>Experiment Investigation</p>	<p>Materials...</p> <p>1 slide 1 timer 1 data tag</p>	<p>My plan...</p> <p>no push self push partner push</p>
 <p>Data Observations</p>	<p>I found...</p>	
 <p>Make a Claim</p>	<p>I Know...</p> <p>We go faster with a partner push or a self push or slower without my partner</p>	

Preliminary Student Scores

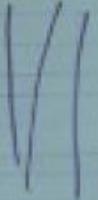
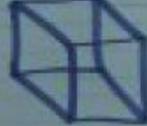
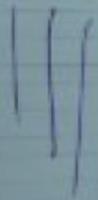


Student Collaboration and Discussion



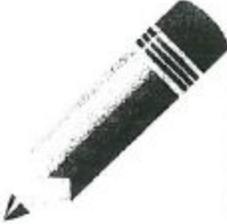
Student Work Sample #1 (page 1 of 5)

Class Data

Object	Speed		Direction	
	slow	fast	—	~
				
				
				

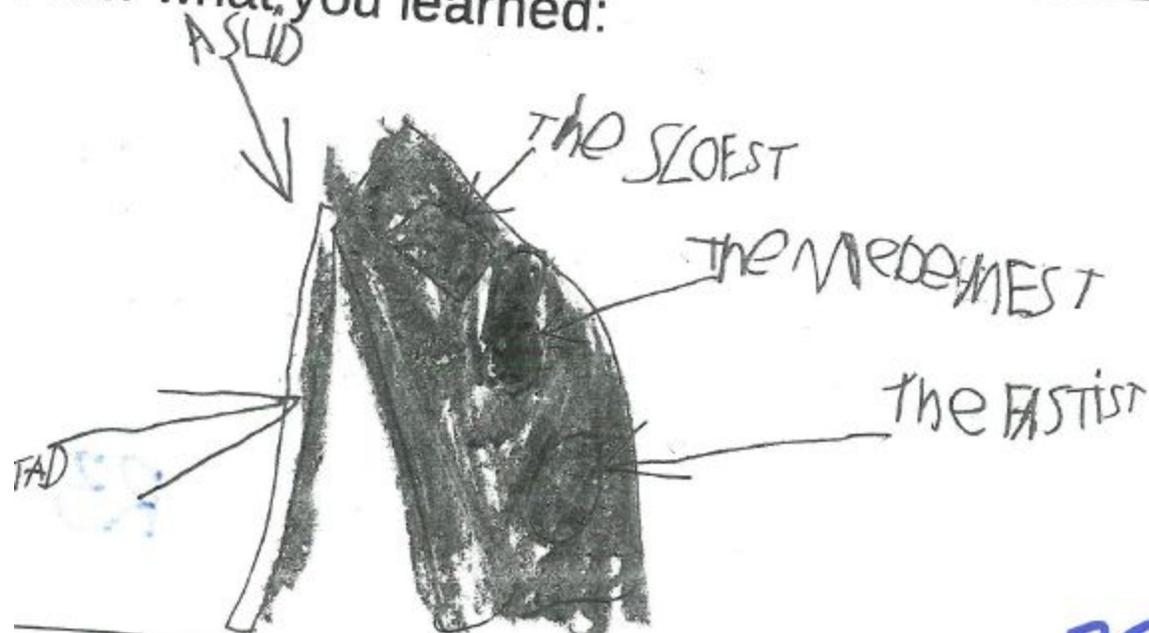
Student Work Sample #1 (page 2 of 5)

<p>Question</p> <p>?</p>	<p>I wonder <u>which shapes</u> <u>will be the fastest?</u> <u>The slowest?</u></p>
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<p>Draw your plan</p> 	
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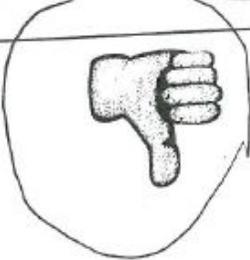
My claim: The sphere went the
fastest and the cylinder
went the medium fastest,

Draw what you learned:



Student Work Sample #1 (page 4 of 5)

How do you feel about this task?

		
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Next time I will...

(draw your goal)

R3

Student Work Sample #1 (page 5 of 5)

Observational Data Collection Collaboration Performance Indicator 2: Contribute to a common goal by exercising flexibility and accountability. Choose one indicator for each student below. Next to the student name circle the corresponding letter: E = Expanding, P = Proficient, D = Developing and B = Beginning. Use the column to the far right for notes of what the student said and/or did as evidence for the chosen indicator.

<p>E Expanding: Student promotes flexibility and accountability in others. For example: investigates the answer to their wondering questions and encourages peers in their group to try different approaches to the investigation and/or to be an active group member.</p>	<p>P Proficient: Student contributes to the common goal. For example: makes adjustments to their opinions or ideas as necessary while investigating.</p>	<p>D Developing: Student exchanges ideas about the common goal. For example: shares and tries out ideas on what to build in order to investigate and answer the wondering question.</p>	<p>B Beginning: Student listens to others ideas related to the common goal.</p>
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<p>3</p>	<p>E P D B</p>	<p>"let's try to make the ramp higher"</p>
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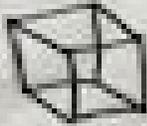
#1 Physical Sciences - Structure and Properties of Matter/Forces and Interactions: A - Expanding Collaboration: 2 - Proficient

Problem Solving and Critical Thinking: 4 - Expanding

Problem Solving and Critical Thinking: 5 - Expanding

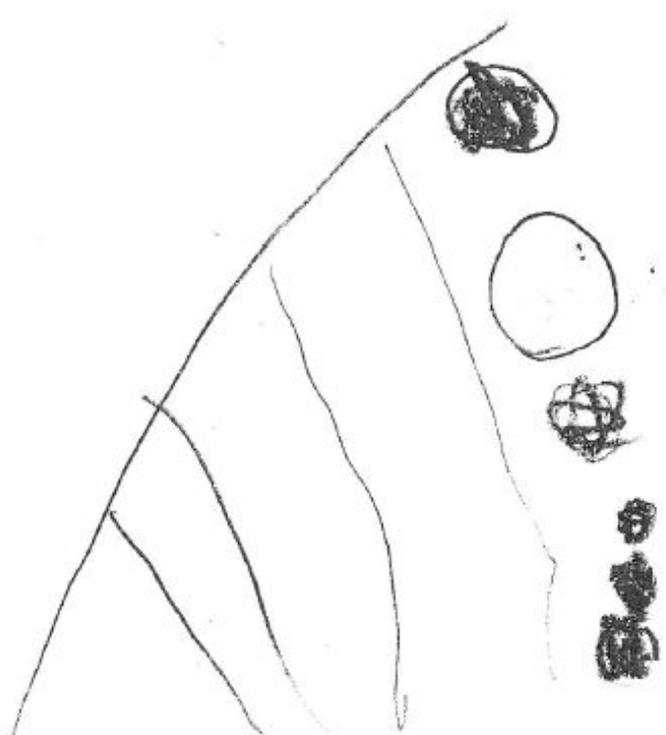
Student question and drawing of claim are aligned and detailed. Student justifies a way they might adjust the plan, "let's try to make the ramp higher" (K-PS2-1.A). Student expanded data collection by independently identifying and making a generalization about the different speeds (3 tiers). Student contributes to the common goal by adjusting opinions/ideas, "let's try to make the ramp higher:" (Collaboration 2). Student drawings of plan versus what they learned shows they anticipated and addressed the ramp height being a possible challenge (Problem Solving and Critical Thinking 4). Student made multiple attempts focused on changing the height of the ramp (Problem Solving and Critical Thinking 5).

Student Work Sample #2 (page 1 of 5)

Shape	Speed		Direction	
	slow	fast	—	~
				
				
				

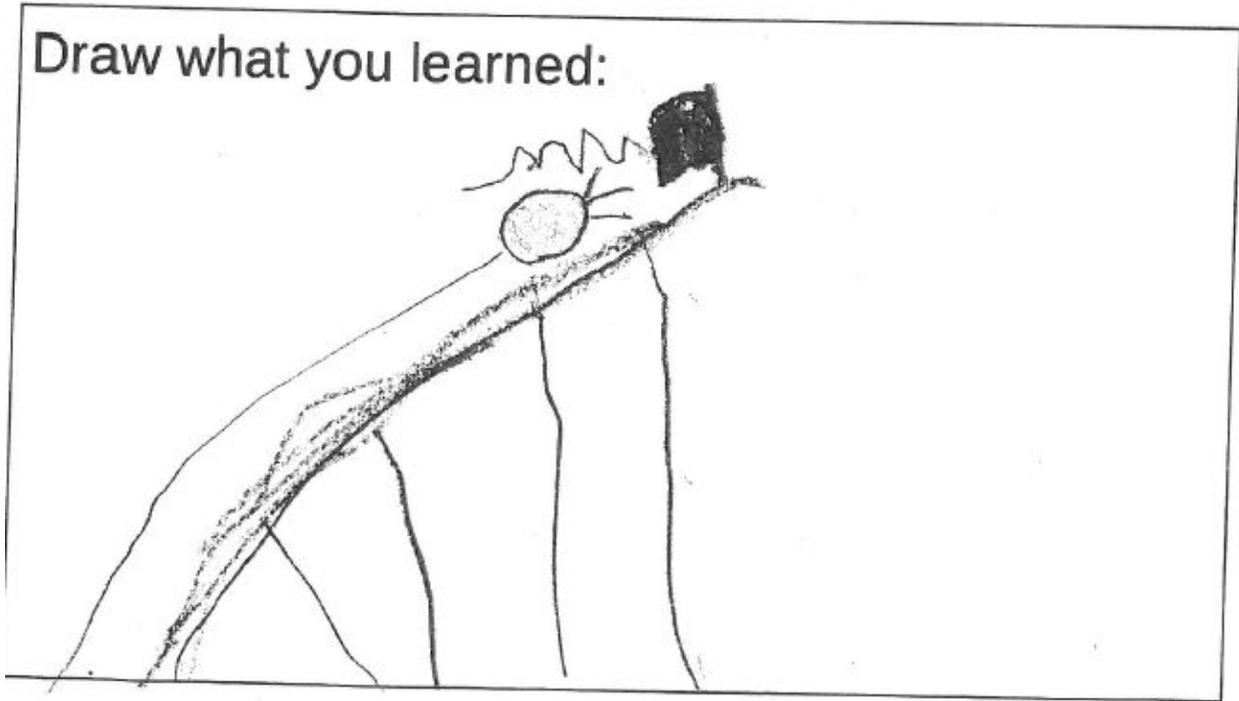
Student Work Sample #2 (page 2 of 5)

<p>Question</p> <p>?</p>	<p>I wonder <u>if the ball will</u> <u>go the fastest?</u></p>
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<p>Draw your plan</p> 	
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My claim: I learned the ball goes
straight and faster and the
cube went curvy and slower,

Draw what you learned:



Student Work Sample #2 (page 5 of 5)

Observational Data Collection Collaboration Performance Indicator 2: Contribute to a common goal by exercising flexibility and accountability. Choose one indicator for each student below. Next to the student name circle the corresponding letter: E = Expanding, P = Proficient, D = Developing and B = Beginning. Use the column to the far right for notes of what the student said and/or did as evidence for the chosen indicator.

<p>E Expanding: Student promotes flexibility and accountability in others. For example: investigates the answer to their wondering questions and encourages peers in their group to try different approaches to the investigation and/or to be an active group member.</p>	<p>P Proficient: Student contributes to the common goal. For example: makes adjustments to their opinions or ideas as necessary while investigating.</p>	<p>D Developing: Student exchanges ideas about the common goal. For example: shares and tries out ideas on what to build in order to investigate and answer the wondering question.</p>	<p>B Beginning: Student listens to others ideas related to the common goal.</p>
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8	E P D B	Made adjustments - tried 2 objects @ the same time - made connection to materials.
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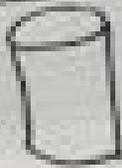
#1 Physical Sciences - Structure and Properties of Matter/Forces and Interactions: A - Proficient
Collaboration: 2 - Proficient

Problem Solving and Critical Thinking: 4 - Proficient

Problem Solving and Critical Thinking: 5 - Proficient

Wondering question and claim matches. Based on student drawing came up with a way to investigate the phenomenon and implemented the plan. Anecdotal data indicates student make adjustments by trying two objects at the same time and made a connection to the materials. This is evidence that the student contributed to the common goal by adjusting their ideas as well as utilizing information and appropriate tools. It's clear the student made multiple attempts based on their adjustment of trying to objects at the same time, as well as the addition of direction data to their claim.

Student Work Sample #3 (page 1 of 5)

Shape	Speed		Direction	
	slow	fast	—	~
				
				
				

Student Work Sample #3 (page 2 of 5)

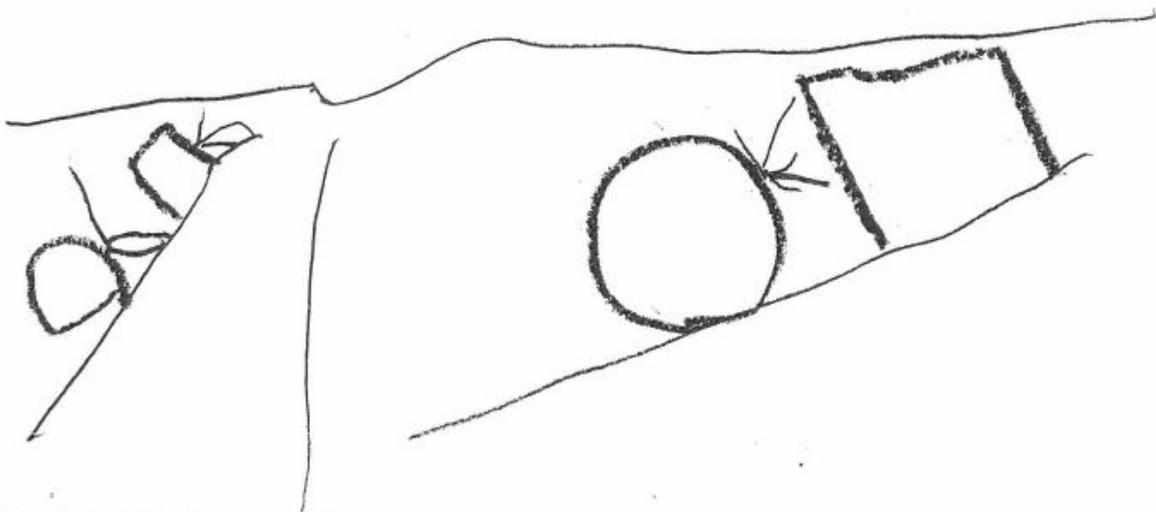
Question ?	I wonder <u>which objects</u> <u>will go curvy?</u> <u>Which will go straight?</u>
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Draw your plan 	
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My claim: The big cubes don't move.

The little cubes slide.

Draw what you learned:



Student Work Sample #3 (page 5 of 5)

Observational Data Collection Collaboration Performance Indicator 2: Contribute to a common goal by exercising flexibility and accountability. Choose one indicator for each student below. Next to the student name circle the corresponding letter: E = Expanding, P = Proficient, D = Developing and B = Beginning. Use the column to the far right for notes of what the student said and/or did as evidence for the chosen indicator.

<p style="text-align: center;">E</p> <p>Expanding: Student promotes flexibility and accountability in others. For example: investigates the answer to their wondering questions and encourages peers in their group to try different approaches to the investigation and/or to be an active group member.</p>	<p style="text-align: center;">P</p> <p>Proficient: Student contributes to the common goal. For example: makes adjustments to their opinions or ideas as necessary while investigating.</p>	<p style="text-align: center;">D</p> <p>Developing: Student exchanges ideas about the common goal. For example: shares and tries out ideas on what to build in order to investigate and answer the wondering question.</p>	<p style="text-align: center;">B</p> <p>Beginning: Student listens to others ideas related to the common goal.</p>
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4	E P D B	Let's try the foam cylinder.
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#1 Physical Sciences - Structure and Properties of Matter/Forces and Interactions: A - Beginning Collaboration: 2 - Developing

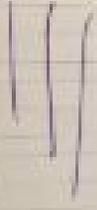
Problem Solving and Critical Thinking: 4 - Developing

Problem Solving and Critical Thinking: 5 - Developing

Student is not investigating the phenomenon they asked the question about (K-PS2-1). However, through anecdotal evidence, "let's try the foam cylinder," it's clear that they're exchanging ideas and used a range of appropriate tools to implement a plan (Collaboration 2). Student did not provide a solution based on the differences between their wonder and their claim (Problem Solving and Critical Thinking 4 and 5)..

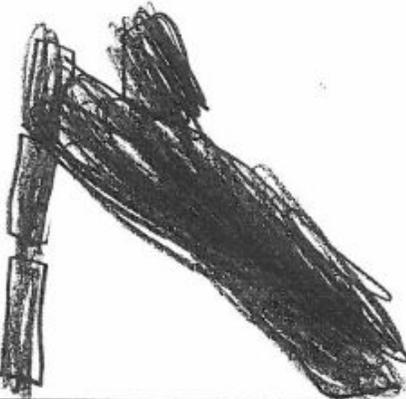
Student Work Sample #4 (page 1 of 5)

Class Data

Object	Speed		Direction	
	slow	fast	—	
				
				
				

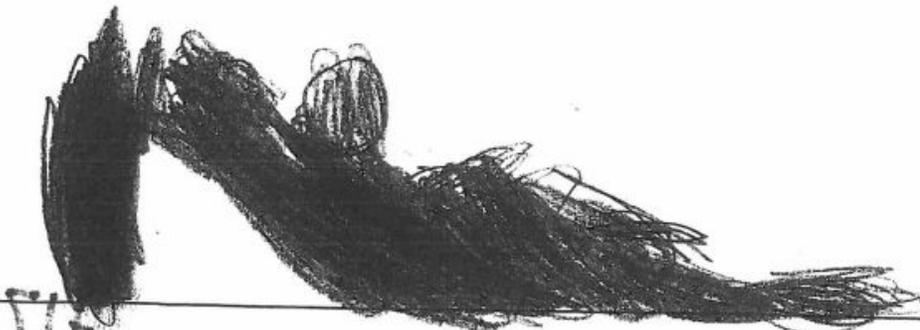
Student Work Sample #4 (page 2 of 5)

<p>Question</p> <p>?</p>	<p>I wonder <u>if the cylinder</u> <u>will go straight or</u> <u>curvy?</u></p>
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<p>Draw your plan</p> 	
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My claim: I learned that the
Sphere went the fastest.

Draw what you learned:



Student Work Sample #4 (page 5 of 5)

Observational Data Collection Collaboration Performance Indicator 2: Contribute to a common goal by exercising flexibility and accountability. Choose one indicator for each student below. Next to the student name circle the corresponding letter: E = Expanding, P = Proficient, D = Developing and B = Beginning. Use the column to the far right for notes of what the student said and/or did as evidence for the chosen indicator.

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<p>17</p>	<p>E P D B</p>	<p>Blaming others for "failed attempts"</p>
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#1 Physical Sciences - Structure and Properties of Matter/Forces and Interactions: A - Developing
Collaboration: 2 - Beginning
Problem Solving and Critical Thinking: 4 - Beginning
Problem Solving and Critical Thinking: 5 - Beginning
 Student asked questions about the phenomenon. Student claim and drawing do not match the initial wondering phenomenon. Based on the claim, student identified and gathered data, but did not discuss or use it to investigate their wondering question (K-PS-2-1). Student blamed others for failed attempts (Collaboration 2). Student identified tools but they were not appropriate for their wondering question. For example, the student's drawing plan shows a cylinder and the claim shows the sphere. The ramp height is different in both pictures. The height of the ramp has no effect on the direction of an object, only the speed (Problem Solving and Critical Thinking 4). There's no evidence that the student identified a strategy and applied it (Problem Solving and Critical Thinking 5).