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What can we observe about a dry bean seed?
 I predict that the soaked bean seed will change size, I think this because it will soak the water up.

Dry Beanseed Soaked beanseed

color	lite tan	lite Gold
Shape	trapuzod	Trapuzod
Texture	rof	Smooth
odor	no en	no en
size	1 cm.	1 1/2 cm

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What do you think causes
a slide whistle to make different
Pitches?



I Predict when the slide is all
The way in. The Pitch will be
low because the trumpet is the
same way and when the slides
in on a trumpet it makes a high Pitch



I predict when the slide is
half way in the Pitch will be
medium because on a

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trumpet when it is half way
in it makes a medium Pitch

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What do you think
causes a slide whistle to make different pitches?



I predict when the slide is all the
way in, the pitch will be high because smaller
things that we used were higher.



I predict when the slide is half way in
the pitch will be medium because things
we used that were medium the sound
was medium.

Third Grade, Sample A—*Plant Growth and Development Unit: Daymeon*

- Daymeon writes a prediction about what he thinks will happen when he soaks a bean seed overnight. The phrase “I think this because” prompts him to provide his reasoning, which is thoughtful and more sophisticated than the reasoning that many of his classmates include in their predictions. Daymeon has a difficult time focusing on tasks, but he likes working as a scientist. The writing frame helps him stay focused and communicate his strong scientific thinking.

Third Grade, Sample B—*Sound Unit: Sten*

- Students have been investigating tuning forks, nails, xylophones, and rulers to discover the effect of length on pitch. Next, they are going to investigate slide whistles. Before they begin their investigation, their teacher gives them this frame: “I predict when the slide is all the way in, the pitch _____ because _____.” They are to write a prediction for when the slide is halfway in as well. The teacher also asks them to make a diagram of the two positions of the slide in the slide whistle. This may help them think about the length of the air column in the whistle and its effect on pitch.
- Sten makes an accurate diagram of the slide in each position. In making his predictions, he clearly explains his reasoning in terms of what he knows about trumpets (he probably means trombones), which accurately relates to the whistle.

Third Grade, Sample C—*Sound Unit: Anthony*

- Anthony also makes accurate diagrams. He accurately bases his predictions on what he has learned from his other investigations of the length of objects and pitch. His reasoning would be even clearer if he used the word *shorter* instead of *smaller* because he is talking about the length rather than the size of an object. (This is a common misuse of terms in this unit.)