Answer questions with questions: Often students know more than they think. So, before just answering their questions, probe what they know with additional questions. Below are some examples that may be helpful.

**History:** We begin with history because these questions relate to the students’ experience… students can almost always talk about what they have done...
- What did you do?
- What happened?
- What happened next?
- What did you do first?
- In what order did you…?
- What procedure did you use?
- What color/temperature/weight/size was it?
- What made you think of doing that?

**Relationships:** Seeking relationships and patterns is an essential process of science...
- How does this compare to…(other outcomes, procedures/experiments)?
- If _____ happened, what happened to ____?
- Where have you seen something like this before?
- In talking to other students, who else got similar results?
- What order does that usually follow?
- What seems to be a common element in all your findings?
- Where/When/How do you usually find these?

**Application:** Applying knowledge is generally acknowledged to be a true test of understanding, as well as the surest way to truly know something...
- How could you use this?
- What problems could this solve?
- Where can we find examples of this in the real world?
- If you wanted to do ____, how would this idea/knowledge/finding/experiment help?
- What machine could you build that would do this?

**Speculation:** Here students must go beyond the data and information given, abstracting to new and unusual situations…after a student makes an assertion, a teacher might ask a speculation question, such as...
- What if you…changed/eliminated/added/mixed/waited?
- What would it take to prove that?
- If you wanted to prevent that from happening, what would you do?
- If that’s true, then…
- What might be inside that black box?

**Explanation:** Communicating an idea, process, or theory to clarify both the nature of the phenomenon and how it occurs...
- How does that work?
- What causes that to happen?
- How would _____ cause ____?
- How would you change your explanation if I changed this part of the apparatus?
- How would it affect your explanation if I _____?
- How does your explanation fit this other phenomenon?