

GOALS AND PROMPTS FOR ENCOURAGING EXPLORATION

So you want to help guide your students to explore? You'll need: (1) an interesting organism/object that students can see and explore, (2) goal(s) in mind and (3) questions that match your goal(s).

Goals and Example Prompts	
GOAL ONE: HELP STUDENTS MAKE BETTER OBSERVATIONS	
<input type="checkbox"/>	1. Making Observations → "What do you notice?" "What observations can you make?" → "What color is it? What shape? What texture? What size? How many are there? Where is it? What are surroundings like?"
GOAL TWO: HELP STUDENTS ASK QUESTIONS ABOUT OBSERVATIONS	
<input type="checkbox"/>	2. Asking Questions → "What does that make you wonder?" → "Can you think of questions we can ask that we can answer through observations?"
GOAL THREE: HELP STUDENTS CONNECT PAST IDEAS AND CURRENT EXPERIENCES	
<input type="checkbox"/>	3. Recalling Prior Knowledge → "How is this the same or different from...?" → "Can you compare this to something else?" → "Have you heard anything about this before?"
GOAL FOUR: HELP STUDENTS MAKE EXPLANATIONS BASED ON EVIDENCE	
<input type="checkbox"/>	4. Making Explanations → "What do you think is the explanation for...?" → "What do you think caused it to be like that?" → "What happened here?" or "What is happening here?" → "What type of animal do you think it was? What makes you think that?"
<input type="checkbox"/>	5. Including Evidence → "What's your evidence for that?" → "Can you show us what you mean?" → "What makes you think that?"
GOAL FIVE: HELP STUDENTS THINK WITH OTHERS	
<input type="checkbox"/>	6. Compare Thinking → "How is this idea different from what Jamal said earlier?" → "What do people think about what Ian just said?" → "Does anyone want to respond to that idea?"
<input type="checkbox"/>	7. Adding on to Thinking → "How does that relate to what Jake said?" → "Can anyone add to what Keylee just said?" → "Can anyone put into words what they think Tanya is trying to say?"
GOAL SIX: HELP STUDENTS DEVELOP SCIENTIFIC ARGUMENTATION SKILLS	
<input type="checkbox"/>	8. Disagree Productively → "Do you agree/disagree? (and why?)" → "Does anyone have a different idea?" or "Does everyone agree with that explanation?" → "What do you think of that idea?" → "Can you rephrase that in a more polite way?"
<input type="checkbox"/>	9. Asking for evidence → If someone says something and you don't know what their evidence is, be sure to ask for it.
<input type="checkbox"/>	10. Using Language of Uncertainty → Remember that in science you've always got to keep your mind open so you shouldn't say or imply anything like "it's the absolute truth." Use "I wonder if," "Maybe," "The evidence seems to show," or similar phrases to express your ideas.

Adapted from Talk Science Primer by Michaels/O'Connor, TERC 2012

