



# Instructional Tools: **Generating and Testing Hypothesis**



## WHAT IS IT?

- Deduction (understanding of a “rule” or norm) paired with induction (inferences based on that knowledge) to form an evaluation (understanding)
- If a deductive approach is employed without induction, then students will be less engaged in the observation process, as they already have their own generalizations - [Video: How to Teach an Inductive Learning Lesson](#)
- A way for students to explain/support their thinking ex. “because”
- Referred to in other ways in other subject areas (i.e. predicting, inferring, deducing, or theorizing)
- Hypothesizing uses questions that “tap into using our natural inclination to solve problems”
- A way for students to bring personal experiences and previous knowledge to bear on the topic/assignment
- Allows students curiosity to guide discovery/inquiry

## WHY USE THIS STRATEGY?

- If students can explain “why” they think something then they can demonstrate both what they know about it as well as areas in which they require more information (demonstrates what they know and what they don’t know)
- Students can bring **personal experiences** in when forming hypothesis (personalized learning)
- It can tap **curiosity and desire** to solve puzzles, problems, etc
- **Enhance student motivation** by tapping into “natural inclination to solve problems” - Chapter 9 *Tools For Classroom Instruction That Works*

## HOW TO USE IT:

- “Because” answers
  - students answer the question but must then explain WHY to demonstrate powerful learning
- “What if...” questions
  - students have to think “deeper” about an issue to explain the importance of it (understanding context)
- Model the processes, use familiar content, provide tools and guidance
- Experimental inquiry - find a topic of interest, apply specific theory or rules, generate prediction, set up an experiment, explain results and decide if prediction was correct
- Provide mini-lessons to help students understand each step of the final task
  - pair with formative assessments to ensure understanding and ample opportunities to refine that understanding
- If \_\_\_\_\_ then \_\_\_\_\_ because \_\_\_\_\_ statements

## RESOURCES & LINKS

- [Science Buddies: A Strong Hypthesis](#) (useful for elementary)
- [Experiment Hypothesis Generator](#) (plug in your information and the app helps build hypothesis- if your info doesn’t fit into this template it probably needs to be reworked)
- [23 Experiment Ideas for Psychology Assignments](#)
- [Critical Thinking & the Scientific Method](#)
- [Video: Generating and Testing Hypotheses in the Classroom](#)
- Video: [McREL - Classroom Instruction That Works \(2nd Ed.\) Generating and Testing Hypotheses](#)