

Lesson Framework for Generating Hypotheses

Lesson Principle	Questions to Ask Yourself	Might Look Like
1) Start with conceptual questions that target the statement of conceptual relationships of the unit	<ul style="list-style-type: none"> • What conceptual relationships are at the heart of this unit? • How can I create conceptual questions that engage students and allow for deep thought right away? • What questions will allow me to gauge students' pre-instructional understanding of the concepts? 	<ul style="list-style-type: none"> • Students recording initial thoughts about conceptual relationships in journal • Groups draw non-linguistic representations of the concept on chart paper and gallery walk to see breadth of class's thinking • Small groups discuss conceptual questions and teacher observes • Teacher provides variety of sample relationship statements and students explain which one aligns with their thinking and why
2) Provide enough background on topic of inquiry in order to make a hypothesis (e.g. background on author or text, preview of historical example)	<ul style="list-style-type: none"> • In what context will students investigate the concepts? • What background information would allow students to generate useful hypotheses about the concept in this context? • How could I preview the topic in a way that intrigues students and sets the stage for inquiry? How can I set up a "mystery" for students to solve? 	<ul style="list-style-type: none"> • Stations or gallery walk of intriguing images that introduce basics of topic • Short lecture or student presentation explaining basic background • Dramatic read aloud of key passage of text or quote about the historical event/figure • Students read "fact sheet" with 4-5 key details • Students brainstorm background knowledge in KWL chart
3) Students generate hypotheses about the topic/text based on current understanding of conceptual relationships	<ul style="list-style-type: none"> • How can students use their current understanding of the concepts to generate hypotheses about the topic/text? 	<ul style="list-style-type: none"> • Students brainstorm hypotheses about the topic/text on sticky notes and categorize them as a group • Students list as many hypotheses as possible in journal and then circle the best one • Pairs discuss and come to consensus on a hypothesis they will test together
4) Provide texts/experiences that allow students to test their hypotheses about the topic through a specific context	<ul style="list-style-type: none"> • What experiences would allow students to test their hypotheses and gain a more nuanced or sophisticated understanding of the relationship between concepts? • Which inquiry strategies will best help students test their hypotheses about this topic? 	<ul style="list-style-type: none"> • Individual reading, marking text for evidence for/against hypothesis, group discussion of text and evidence found • Whole class watches video or lecture, records evidence for/against hypothesis, pairs discuss viability of hypothesis and revise if necessary • Students research information online and collect evidence for/against hypothesis • Students rotate through stations and gather evidence to test hypothesis

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<p>5) Ask students to generalize about the concepts in light of what they learned about the topic</p>	<ul style="list-style-type: none"> • How could students use their learning about the topic to create a transferable understanding about the concepts in general? 	<ul style="list-style-type: none"> • Students write statements to express relationship between concepts <p>Additionally...</p> <ul style="list-style-type: none"> • Students draw non-linguistic representations of the conceptual relationship and explain their thinking to a partner • Synetics -- students consider a variety of images and choose which one best represents the conceptual relationship
<p>6) Have students refine and test their statements of conceptual relationship (and peers' statements)</p>	<ul style="list-style-type: none"> • How can students increase the clarity, accuracy, precision, depth, breadth, relevance, significance, and fairness of their statements? • How can students use facts to support their statements? 	<ul style="list-style-type: none"> • Students ask "Why? How?" and "So what?" to improve precision and significance of statements • Students list facts and examples <u>outside the context studied</u> that support their generalizations • Students read others' statements and refine or support them with evidence • Students create structure of knowledge diagrams to show how they built their statement • Students perform research to further test and refine their statements
<p>7) Ask students to reflect on learning and explain transferability of their statements of conceptual relationships</p>	<ul style="list-style-type: none"> • How can students gain awareness of their learning and the usefulness of their new understanding of the concepts? • How can I help students track their own growth in thinking and understanding? 	<ul style="list-style-type: none"> • Students return to original thoughts about concept and compare to their new thoughts • Students complete exit slip describing how their understanding has changed • Students track growth on novice to expert scale/rubric (see chapter five) and explain what happened in their brains to make this progress • Students name the points of the lesson when they were doing "complex" or "deep" thinking and explain what this felt like • Pairs brainstorm situations when they could use their new idea (transferability) • Students explain how partner helped them push their thinking or led them to a "breakthrough"