Planning Instructional Strategies

Increasing Student Achievement
Advancing Teacher Practice

***About this document**:* This resource guides the developer of an SLO through the important thinking processes associated with teacher growth strategies. Research on SLOs has shown the important role teacher growth strategies play in a SLO, and this resource supports an educator to develop this element at a high level of quality.

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The four steps that follow are intended to guide the planning of instructional strategies to be used in an SLO. For each step in the protocol, some description is provided as well as an example application of the protocol for a teacher of high school physics.

1. Consider a variety of strategies for teaching the content.

What follows is a list of the strategies and delivery methods used with the Missouri Observation Simulation Tool (MOST). While some of the strategies carry a greater body of research with them than others, each can help in shaping the overall approach to instruction. While it is helpful to know each of these strategies and what it entails, give strong focus to strategies that have proven effective in teaching the content.

1. Advanced/Graphic Organizers
2. Class Discussion
3. Cooperative Learning
4. Group Work
5. Guided Practice
6. Hands-On/Active Learning
7. Independent Student Work
8. Inquiry Based
9. Learning Centers
10. Lecture
11. Nonlinguistic Representations
12. Peer Evaluation
13. Project Based Learning
14. Question/Answer
15. Similarities/Differences
16. Student Presentations
17. Summarizing/Note Taking

Let's take a look at how a high school physics teacher approaches the identification of strategies. For context, and to ensure alignment, it is important to know the following performance expectations are being selected from the *Next Generation Science Standards*:

NEXT GENERATION SCIENCE STANDARDS For States, By States

HS-PS2-1: Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.

HS-PS2-2: Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.

HS-PS2-3: Apply scientific and engineering ideas to design, evaluate, and refine a device that minimizes the force on a macroscopic object during a collision.

HS-PS2-4: Use mathematical representations of Newton's Law of Gravitation and Coulomb's Law to describe and predict the gravitational and electrostatic forces between objects.

HS-PS2-5: Plan and conduct an investigation to provide evidence that an electric current can produce a magnetic field and that a changing magnetic field can produce an electric current.

2. Identify the key strategies

The goal in identifying two or three key strategies is to focus planning on the core approaches to instruction based on what has been proven to meet students' needs that the teacher is fully prepared to support.

Continuing our example for high school physics…
In light of research known and past experience, the teacher identifies two strategies: **Hands-On/Active Learning** and **Summarizing/Note Taking**. While other strategies in the list above will be also be used during the interval of instruction, it is these two that will shape her overall approach to instruction.

3. Describe the key strategies.

While there are some typical common aspects of certain strategies, it is up to the teacher how best to execute the strategies in the classroom. The process of describing how the strategies will be used in the classroom is an opportunity for the teacher to engage in important long-term planning processes, while portraying for adminstrators and others how they can expect instruction to look during the interval.

Having the following experiences in mind for the upcoming instruction…

…the teacher describes the strategies in the following manner:

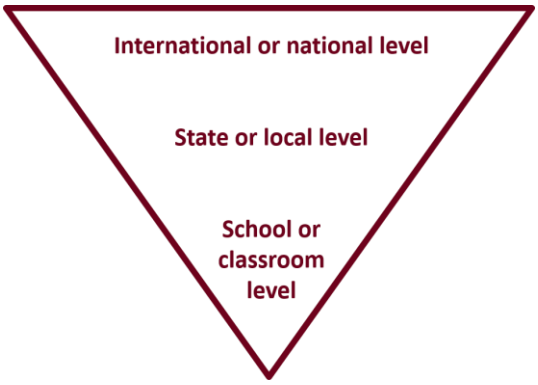
- **Hands-On/Active Learning**: I will create a culture of inquiry by way of strategic questioning throughout lessons, where I will not provide answers so much as questions to ensure conclusions are based in evidence; via field studies around campus so students observe and predict physics in everyday situations; and by way of hands-on experiences during lessons where they are the "doers" of science and can internalize strong habits of mind.
- **Summarizing/Note Taking**: Each lesson, students will record observations, questions, evidentiary data, and other information relevant to investigations that will lead them to conceptual understandings over time. I will also show notebook entries on the document camera so students can analyze each other's work as professional scientists do. Notebooking is also my main approach to formative assessment so I can monitor progress.

4. Justify the key strategies.

Wanting to be successful in helping students achieve their targets, it is helpful to provide evidence that the strategies to be used throughout the interval are proven to work effectively. While research may be available for some strategies, past experience in using the strategies with demonstrable success can also be a way to validate the strategies.

Sample resources to seek justification include

- Research studies on specific methodologies
- Professional publications exploring strategies
- Resources from professional organizations
- District-sponsored professional development
- One's past experience with the strategies
- Student survey data showing what helped them



In justifying strategies, our high school physics teacher cites the following:
Hands-On/Active Learning: I participated in a district-sponsored case study following a successful teacher for secondary physics. This approach is supported by the National Research Council, and their book *How Students Learn: Science in the Classroom* shows the many reasons this approach works better…primarily to let students build their own conclusions based on data.
Summarizing/Note Taking: I have used this approach for the last few years and have found it helps me tailor individual feedback to students, has students engage in critical peer review, and allows me to monitor how their conceptual development is progressing.

5. Articulate an ongoing plan for using data to inform instruction.

This is the heart of differentiation. To help ensure success, formative components during instruction need to complement the summative components of an SLO. This step focuses practitioner thinking on how monitoring of student learning will take place and how adjustments will be made during the interval of instruction. Higher quality plans tend to have four key components:

- Measures to be used as formative assessments
- Frequency of use for the measures to ensure they are ongoing
- Method for analyzing results of the measures
- Impact the analyses will have on instruction

Below is the plan our high school physics teacher has articulated:

I will use students' daily notebook entries and weekly assessments to formatively measure students' learning. I will review the notebook entries individually, and discuss trends from these entries and weekly assessment results with my colleagues in our PLC. Reviewing these data as a team, we will discuss which instructional approaches are working well for our diverse student populations in learning the key concepts taught to-date. We will share strategies, anecdotes, and results to inform how we can modify our grouping strategies and specific instructional approaches to ensure all students learn the selected standards.