

# Science Instructional Strategies

**COMPONENT #: 2-015-395**

**POINTS TO BE EARNED: 120 MPP**

## **PART I – PLANNING**

**DESCRIPTION:** Write a brief description of content and intent of component.

This component is designed to enable the participant to understand essential pedagogical knowledge through effective decisions about learning objectives, teaching strategies, and curriculum materials.

Upon successful completion of this professional development activity, the participant will be able to incorporate into his/her instruction the principles presented in this workshop.

**STANDARDS/FOCUS AREAS ADDRESSED BY COMPONENT:** Identify the standards, national/state/district imperatives, initiatives or key focus areas this component supports.

**Standards for Professional Learning** (choose one)

- |   |  |
|---|--|
| <input type="checkbox"/> Learning Communities | <input type="checkbox"/> Learning Designs          |
| <input type="checkbox"/> Leadership           | <input checked="" type="checkbox"/> Implementation |
| <input type="checkbox"/> Resources            | <input type="checkbox"/> Outcomes                  |
| <input type="checkbox"/> Data                 |  |

**Florida Educator Accomplished Practices** (check all that apply)

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Instructional Design and Lesson Planning | <input type="checkbox"/> Assessment   |
| <input checked="" type="checkbox"/> The Learning Environment                 | <input checked="" type="checkbox"/> Continuous Professional Improvement             |
| <input checked="" type="checkbox"/> Instructional Delivery and Facilitation  | <input checked="" type="checkbox"/> Professional Responsibility and Ethical Conduct |

**Florida Leadership Standards** (check all that apply)

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Student Learning Results          | <input type="checkbox"/> Decision Making                    |
| <input checked="" type="checkbox"/> Student Learning as a Priority    | <input type="checkbox"/> Leadership Development             |
| <input checked="" type="checkbox"/> Instructional Plan Implementation | <input type="checkbox"/> School Management                  |
| <input checked="" type="checkbox"/> Faculty Development               | <input type="checkbox"/> Communication                      |
| <input checked="" type="checkbox"/> Learning Environment              | <input type="checkbox"/> Professional and Ethical Behaviors |

**IPEGS Standards** (check all that apply)

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> PS 2 – Knowledge of Learners                 | <input type="checkbox"/> PS 6 – Communication                   |
| <input checked="" type="checkbox"/> PS 3 – Instructional Planning                | <input checked="" type="checkbox"/> PS 7 – Professionalism      |
| <input checked="" type="checkbox"/> PS 4 – Instructional Delivery and Engagement | <input checked="" type="checkbox"/> PS 8 – Learning Environment |
| <input type="checkbox"/> PS 5 – Assessment                                       |   |

**IMPACT FOCUS AREA(S):** Select the intended impact focus area(s) from the choices below. Note that Impact Evaluation procedures should reflect this level of impact.

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Educator knowledge/skill (content) | <input checked="" type="checkbox"/> Student learning       |
| <input type="checkbox"/> Educator (professional growth)                | <input type="checkbox"/> Organizational support and change |

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**SPECIFIC LEARNER OUTCOMES:** Identify the intended learner outcomes (number and content of learner outcomes should be reflective of the total points participants will earn as a result of completing this learning).

1. Identify instructional strategies that engage students in multiple ways.
2. Identify activities to use with students that will promote the understanding of science.
3. Identify various instructional strategies for differentiating instruction in science.
4. Implement instructional strategies through the integration of a variety of content areas.
5. Engage in discourse about content, curriculum, teaching, learning, as they pertain to students.
6. Gain an understanding of pedagogical content knowledge.
7. Conceptualize connections among science, learning, and pedagogy.

## PART II – LEARNING

**LEARNING PROCEDURES:** Describe the experiences (the “what”) and formats/methods (the “how”) that will be used to provide participants with the knowledge and skills sufficient to master the intended learner outcome of this component.

1. Participate actively in discussions and activities on innovative strategies/techniques, Science, Technology, Engineering, Mathematics (STEM) integration and/or materials for specific instructional objectives (SLO 1-7).
2. Discuss how the innovative strategies and/or materials can be used to support specific instructional objectives (SLO 1-7).
3. Implement specific instructional strategies and activities that will address the needs of diverse learners (SLO 1-4).
4. Provide a product related to the training (e.g. lesson plans, written reflection, audio/video tape, case study) verifying that the professional development impacted their professional behavior (SLO 1-7).
5. Submit evidence (e.g. student work, pre and post assessments, surveys) verifying that the content impacted student achievement (SLO 1-7).
6. Monitor and adjust programs, as needed, as a result of the implementation feedback and findings (SLO 1-7).
7. Develop an action research study related to the training and provide evidence of implementation (SLO 1-7).
8. Provide evidence of collaborative planning related to the training (SLO 1-7).
9. Partake in mentor/coaching activities which may include, but not be limited to, direct observation, conferencing, oral reflection, lesson demonstration and/or follow up session(s) (SLO 1-7).

## PART III – IMPLEMENTATION

**IMPLEMENTATION PROCEDURES:** Method(s) and resource(s) that will be provided to support implementation of new learning for participants (check all that apply).

Apply newly acquired professional knowledge, skills, dispositions, and behaviors to improve practice.

Provide sufficient classroom- and school-focused support and assistance by skillful coaches,

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mentors, or others to the educator to ensure high-fidelity implementation of professional learning.

X Provide educators with web-based resources and assistance to support implementation of professional learning.

## PART IV – EVALUATION

**IMPACT EVALUATION PROCEDURES:** Describe the processes that will be used to determine the impact (as identified in previous section titled “Impact Focus Areas”). Description should reflect methods for determining at least ONE of those areas, and will include a specific section for each impact focus area identified for this component.

1. Educator knowledge/skill: Will be based on changes in the educator’s teaching practices utilizing the skills and knowledge acquired and other indicators stated in learner outcome and procedures sections, as evidenced by classroom walk-throughs, participant reflections, and student materials.
2. Student learning: Will include evidence of implementation through documentation of impact on student achievement, such as tests, surveys and other assignments.

**COMPONENT EVALUATION PROCEDURES:** Describe the process(es) that will be used to determine the effectiveness of this component to include design, implementation and impact (check all that apply).

X Evaluate the impact of all professional learning on educator’s practice through reflection, assessment, collaborative protocols for examining educator practice and work samples, peer visits, and/or professional portfolios.

X Determine the degree to which educator’s professional learning contributed to student performance gains as measured by classroom assessment data.

X Use summative and formative data from state or national standardized student achievement measures, when available, or other measures of student learning and behavior such as district achievement tests, progress monitoring, educator-constructed tests, action research results, discipline referrals, and/or portfolios of student work to assess the impact of professional learning.

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**Department:** Mathematics and Science

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