PhD Science® Texas Phases of Implementation: Implementation Phases and Progression Indicators

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Overview

PhD Science Texas aims to unlock students' natural curiosity to drive their learning as they think and act like scientists to build deep transferable knowledge about the real world. A successful implementation of *PhD Science Texas* takes dedication, time, and skill from all stakeholders and generally progresses through four phases. This resource describes the phases, including observable leader, teacher, and student actions characteristic of each phase. The phases represent a cumulative learning continuum that builds knowledge and practice over time.

Implementation Phases

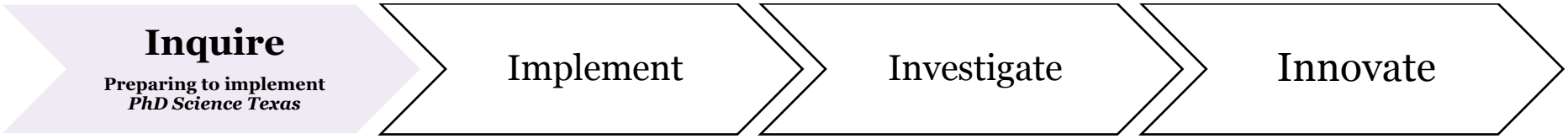
Inquire **Preparing to implement *PhD Science Texas***	**Implement** **Learning and exploring *PhD Science Texas***	**Investigate** **Deepening and customizing *PhD Science Texas***	**Innovate** **Skillfully maximizing *PhD Science Texas***
Curriculum Implementation: Leaders and teachers prepare by ensuring curricular resources and materials are in place for implementation of *PhD Science Texas*. All stakeholders understand the rationale behind the pilot or adoption and are committed to its success. **Instructional Focal Elements:** Science Texas Essential Knowledge and Skills (TEKS), English Language Proficiency Standards (ELPS), science content knowledge, phenomena-based and student-driven instruction	**Curriculum Implementation:** Leaders and teachers build an understanding of what, why, and how behind the curriculum. They implement the curriculum as designed to gain comfort and familiarity focusing on multi-dimensional learning. **Instructional Focal Elements:** Module and lesson structure, pacing, scientific models, anchor visuals, questioning, investigations, materials, student-driven culture	**Curriculum Implementation:** Leaders and teachers increase their understanding of and familiarity with *PhD Science Texas* by focusing on fluency. They become more consistent in their planning, pacing, and facilitation. Educators customize instruction so that it is appropriately rigorous and engaging for all learners while preserving the curriculum's intention. **Instructional Focal Elements:** Discourse, differentiation, supporting all learners, student work	**Curriculum Implementation:** Leaders and teachers facilitate highly effective *PhD Science Texas* implementation across classrooms and campuses. Educators effectively maintain pacing and customized instruction by responding to student data when planning instruction. **Instructional Focal Elements:** Assessments, data-driven instruction, leveraging related phenomena

Notes:

- *PhD Science Texas* implementation is a continuous and cumulative journey. Effective implementation in each phase will include instructional elements from all phases of implementation. *Instructional Focal Elements* include the recommended instructional and pedagogical strategies that districts may prioritize to coherently build a strong foundation to support successful long-term implementation. Each Instructional Focal Element builds on elements from the previous phase(s). The Instructional Focal Elements are aligned with our other *Great Minds*™ curricula to support content-agnostic, whole-school implementation strategies.
- This resource is not intended as an evaluative tool. Instead, it should guide the progression of implementation as each phase builds on previous phases.
- The timeline provided is a guideline. Previous experience with *PhD Science* and additional various factors may lead to progressing through the phases at different paces.
- In this resource, leaders may include, but are not limited to, district administrators, curriculum directors, principals, assistant principals, and instructional coaches. Teachers include, but are not limited to general education teachers, special education teachers, interventional specialists, and paraprofessionals.

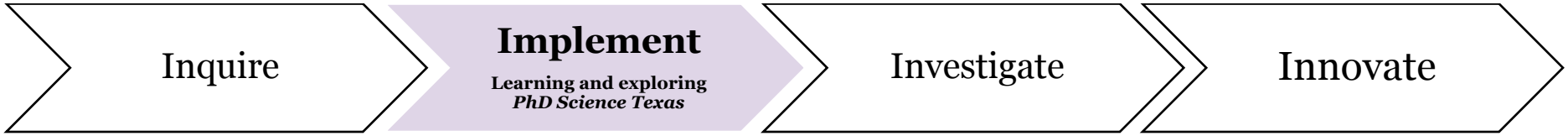
Implementation Progression Indicators

Inquire (Prior to Year 1)



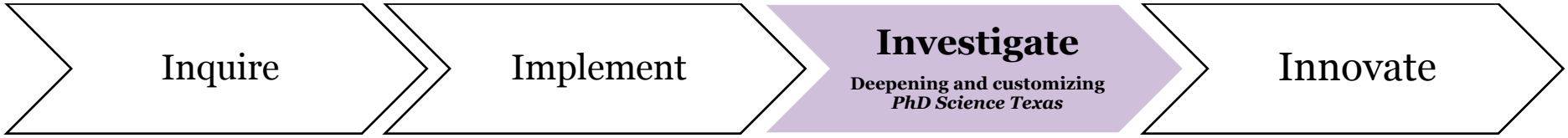
Leaders	Teachers	Students
• Identify stakeholders to lead and support implementation and define their roles. • Ensure access to all print and digital curriculum materials for leaders, teachers, and students. • Ensure order and delivery of materials kits and school-supplied items. • Plan for materials organization and management. • Leverage resources from Great Minds to plan professional learning for leaders and teachers. • Participate in *Lead PhD Science Texas* professional development. • Introduce the learning community to *PhD Science Texas* and ensure buy-in for implementation. • Understand how *PhD Science Texas* supports phenomena-based and student-driven instruction.	• Participate in *Launch PhD Science Texas* professional development. • Understand how *PhD Science Texas* supports phenomena-based and student-driven instruction. • Review print and digital curriculum resources such as the Teacher Editions and Implementation Resources. • Organize materials such as the Teacher Editions, Science Logbooks, Materials Kits, Core Texts, and Assessment Packs.	• There are no student actions during this Inquire phase.

Implement (~Years 1+)



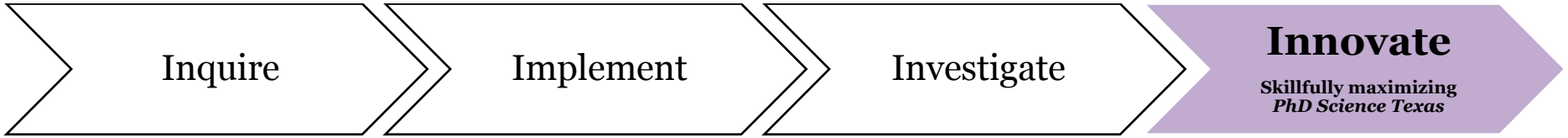
Leaders	Teachers	Students
• Establish a supportive culture by communicating the importance of science instruction and allotting time and resources to support teachers during implementation. • Set expectations for teachers regarding the implementation of *PhD Science Texas* (e.g., teach *PhD Science Texas* daily). • Develop a culture of curriculum study and provide supporting structures for teacher collaboration and planning. • Participate in *Guided Observation for Leaders*. • Understand the key indicators of successful *PhD Science Texas* instruction. • Engage in observation and feedback loops that teachers will leverage and trust to support fluency of *PhD Science Texas* implementation. • Acknowledge and celebrate teachers' successes in attempts to shift practice. • Continue to leverage resources from Great Minds to adjust implementation supports and professional learning plans to meet district-specific needs.	• Participate in *Module and Lesson Study* and *Learn PhD Science Texas* professional development sessions and other selected foundational sessions based on teacher need. • Study and internalize curriculum materials to prepare for instruction. • Implement the curriculum as designed, with an understanding that instruction may initially take longer than recommended. • Follow the Launch, Learn and Land lesson structure. • Learn the anchor visuals, collaborative conversation strategies, and instructional routines that foster a student-driven classroom and use them as indicated. • Refine and maintain pacing, devoting most instructional time to the lesson's Learn section. • Use collaborative conversation prompts from the Implementation Guide to build comfort to facilitate connections between investigations and phenomena. • Establish classroom norms and cultivate social-emotional learning as a foundation for students to engage in rigorous learning.	• Engage in and practice the anchor visual routines by contributing non-verbal, verbal, and/or written ideas to their development. • Use the Science Logbook to ask questions, record observations, draw models, write explanations and ideas to make sense of the phenomenon. • Engage in the Scientific and Engineering Practices. • Make connections between questions, lesson investigations and the phenomenon. • Contribute to science discourse. • Actively participate in instructional routines. • Engage in respectful peer-to-peer interactions by demonstrating empathy, taking responsibility for learning, practicing self-regulation, showing perseverance, and contributing to a positive classroom community.

Investigate (~Years 2+)



Leaders	Teachers	Students
• Plan professional learning and additional implementation support for new teachers and leaders. • Establish structures for analyzing student work and assessments to inform lesson customizations. • Use observation and feedback loops to ensure lesson customizations maintain fidelity to the lesson objectives and pedagogical design, while supporting students' needs. • Participate in *Guided Observation for Leaders*. • Provide ongoing and regular reflective feedback that promotes a growth mindset by emphasizing strengths and providing pushes for continued growth. • Continue to leverage resources from Great Minds to adjust implementation supports and professional learning plans to meet district-specific needs.	• Participate in *Discourse for a Student-driven Classroom, Planning and Preparing by Using Checks for Understanding, Differentiation in a Student-driven Classroom,* and other selected sustaining sessions based on teacher need. • Effectively use the curriculum materials and customize daily instruction to support all learners. • Use Collaborative Conversation Prompts to customize instruction and encourage students to clarify, justify, and interpret their ideas to make sense and explain phenomena. • Promote student-initiated and student-to-student discourse. • Encourage students to demonstrate their thinking through multiple means of action and expression. • Provides strategic modeling, scaffolding, and extensions in response to evidence-based needs. • Uses a variety of strategic grouping structures to support thinking, collaboration, including whole group, small group, pairs and individual. • Analyze student work to inform instruction to meet small group and individual student needs. • Holds all students accountable for learning.	• Use multiple modalities to express their understanding. • Engage in purposeful scientific discourse by clarifying, justifying, interpreting ideas, and responding to others to develop knowledge and build understanding. • Practice and develop skills such as listening, responding, asking questions, paraphrasing, summarizing, citing evidence, making connections, and building ideas based on the opening question. • Use scientific language in verbal and written responses to explain phenomena or solve a problem. • Demonstrate persistence, confidence, and independence in "figuring it out."

Innovate (~Years 4+)



Leaders	Teachers	Students
• Maintain processes for ongoing professional learning, collaboration, and planning, accounting for varied experiences of teachers. • Participate in *Guided Observation for Leaders*. • Use observations and feedback conversations to ensure lesson customizations differentiate based on students' needs. • Analyze classroom and school data to identify inequity and implementation concerns and make a plan to address them. • Maintain processes for growth-mindset oriented teacher development to ensure all teachers receive frequent support, observation, and reflective feedback.	• Participate in *Leveraging Related Phenomena* and other selected sustaining sessions based on teacher need. • Develop understanding of alignment with prior and successive grade levels. • Make connections to prior or upcoming content, providing scaffolds and extend learning. • Use data from student work and assessments (Checks for Understanding, Conceptual Checkpoints, Science or Engineering Challenge, End-of-Module Assessments, End-of-Spotlight Assessments, and Benchmark Assessments) to inform whole-class and individual instructional decisions. • Maintain robust and rigorous discourse facilitation. • Generously share experiences to mentor teachers new to the curriculum.	• Express confidence in scientific discourse including justifying, interpreting ideas, and responding to others to develop knowledge and build understanding. • Independently notice, wonder, and make connections to prior learning. • Consistently provide clear explanations of scientific ideas to make their thinking visible. • Engage constructively with peers' scientific thinking. • Demonstrate curiosity through authentic and relevant wonderings.

Works Cited

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