K-12

Van Andel Education Institute
Sustained Training

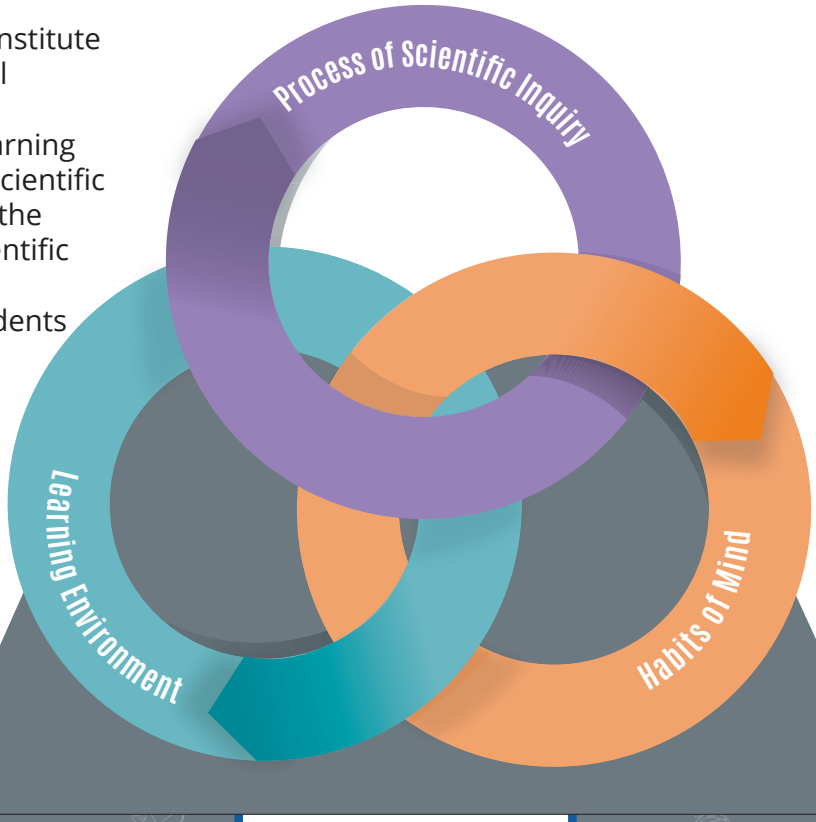
Develop classroom-tested strategies that transform instruction and engage students.

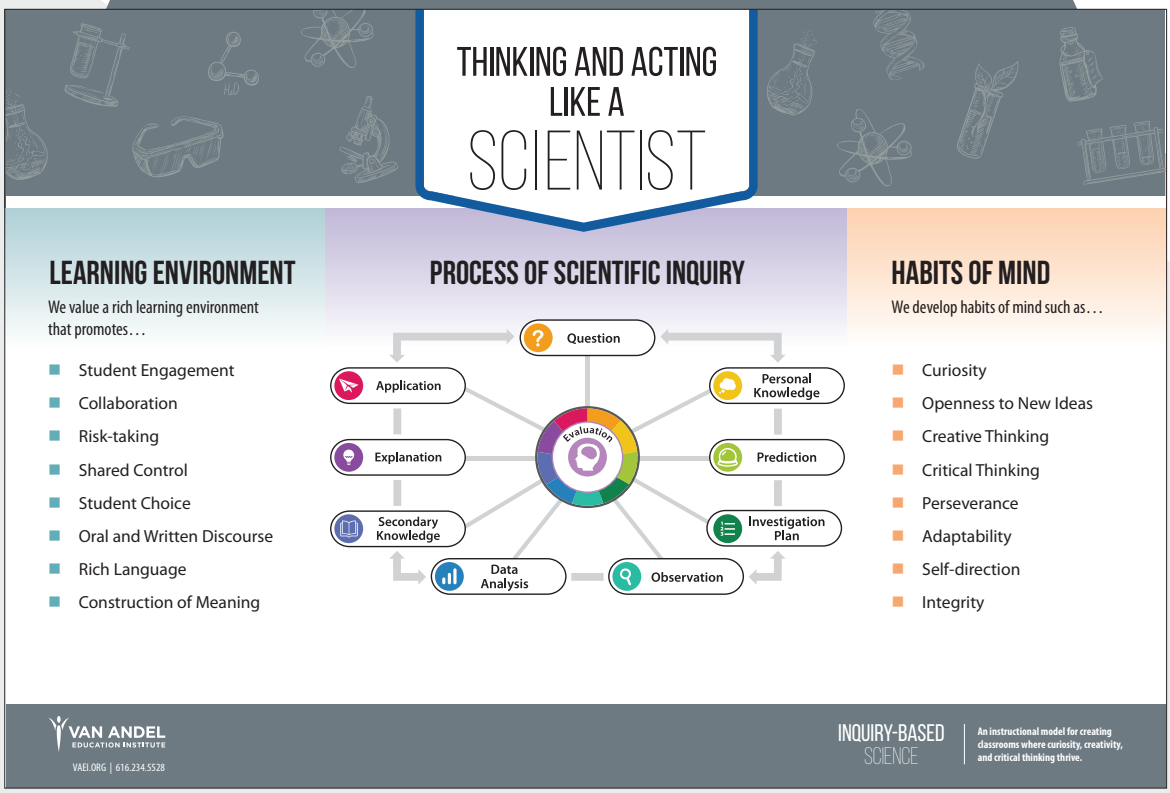
VAN ANDEL
EDUCATION INSTITUTE

VAEI.org | 616.234.5528

VAEI'S INSTRUCTIONAL MODEL & SUSTAINED TRAINING

The Van Andel Education Institute (VAEI) instructional model integrates a process of scientific inquiry with a rich learning environment while nurturing scientific habits of mind. By addressing the process and the culture of scientific inquiry, the model becomes a practical guide for helping students and teachers think and act like scientists.





VAEI's instructional model provides a framework to support scientific inquiry.
We use this model to transform any lesson into an inquiry-based learning experience.

VAEI supports implementation of inquiry-based learning from start to finish. Our professional development and instructional tools support a transformation of science instruction.

STAGE 1 Small Changes; Big Results

- Experience inquiry in order to build awareness and create a compelling classroom vision
- Cultivate a growth mindset and make small changes to instruction
- Utilize strategies that nurture curiosity and encourage collaboration

STAGE 2 Making Inquiry a Habit

- Deliver and facilitate standards-aligned, science-based investigations
- Implement strategies that routinely develop critical and creative thinking
- Incorporate student choice effectively and with confidence

Stage 3 Deeper Levels of Inquiry

- Implement sequences of inquiry-based investigations
- Guide students effectively in rigorous analysis and discourse
- Incorporate VAEI engineering design as appropriate

Stage 4 Transformed Science Instruction

- Support student-driven investigations on a regular basis
- Facilitate collaboration in an established rich learning environment
- Develop habits of mind consistently and across all learning

Year One Workshops

1.1 Learn Science by Doing Science
1.2 Questions Drive Inquiry
1.3 Turning Data into Evidence
1.4 C-E-R in the Collaborative Classroom

Year Two Workshops

2.1 Lesson Sequences: Storylines in Science
2.2 Connecting Science and Engineering
2.3 Transform Any Lesson into an Inquiry Lesson

All VAEI workshops offer teachers:

- An interactive opportunity to **experience** an investigation that models inquiry-based science.
- Strategies for successfully incorporating a process of **scientific inquiry** as well as a classroom culture of **thinking** and **collaboration**.
- Access to **VAEI lessons** aligned to standards and ready for implementation and customization.
- Easy-to-implement **strategies** that support the processes of scientific inquiry and engineering design, scientific habits of mind, and a rich, collaborative learning environment.
- Development of a **portfolio** to support inquiry-based science learning.
- Support in implementation throughout the year with **individualized action plans** and frequent feedback loops.

Year One Workshops

Workshop 1.1

Learn Science by Doing Science

This two-day workshop provides an immersive experience where teachers learn science by doing science. Conduct science investigations utilizing the VAEI Instructional Model for Inquiry-Based Science, which integrates a process of scientific inquiry, a rich learning environment, and scientific habits of mind. Learn 4 changes you can make right away to increase student engagement with inquiry-based instruction. Evaluate the role of a growth mindset in transforming science instruction and leave with a ready-to-implement inquiry-based lesson as well as practical strategies to begin transforming your classroom.

Learning Objectives

- Experience a complete investigation sequence that models inquiry-based science (messing about, structured, open, and engineering design).
- Understand how the VAEI instructional model can be used to support teaching and learning with a process of scientific inquiry, a rich learning environment, and scientific habits of mind.
- Learn time-saving connections for integrating science across the curriculum (K-5).
- Learn time-saving strategies for facilitating inquiry-based science (6-12).
- Discover 4 instructional habits that can increase engagement and kick-start inquiry-based instruction.
- Learn how to begin cultivating a growth mindset in your classroom.
- Select and prepare a lesson where students learn science by doing science.
- Receive customized assistance with implementation plans and lesson feedback.

1-day option available, but excludes the complete investigation sequence, the customized assistance and feedback, and time for application.

Focus Areas

Learning Environment	Scientific Inquiry	Habits of Mind
Experiential introduction to the instructional model for inquiry-based science and specific strategies to begin inquiry-based instruction		

Workshop 1.2

Questions Drive Inquiry

In this one-day workshop, discuss the role journaling plays in helping students construct meaning, and learn ways to incorporate journaling throughout an investigation. Refine your understanding of investigation questions with practical guidance on the creation and evaluation of questions that drive science investigations. Discover strategies to nurture curiosity and student engagement. Share your experiences in implementing inquiry-based lessons and strategies with colleagues and leave with additional lessons and strategies to implement inquiry-based science.

Learning Objectives

- Experience an investigation that models inquiry-based science.
- Understand the role of journaling and practical strategies to incorporate journaling.
- Become proficient in evaluating and creating investigation questions that effectively drive inquiry-based investigations.
- Develop strategies that nurture curiosity and increase student engagement.
- Select and prepare a lesson where students learn science by doing science.

Focus Areas

Learning Environment	Scientific Inquiry	Habits of Mind
Student Engagement	Question	Curiosity

Keep the Momentum Going...

VAEI offers optional professional development support webinars between trainings. Teachers will be able to ask questions and network around any challenges or successes they are having in the classroom.

Workshop 1.3

Turning Data into Evidence

In this one-day workshop, explore the role of Data Analysis in the inquiry process, and learn how to help students turn data into evidence with a 4-part process. Discover practical strategies for developing student creativity and critical thinking. Learn how to teach students the importance of integrity in investigations. Use oral and written discourse strategies that put students in the driver's seat of their own learning. Foster an environment that promotes students' use of rich language. Share your experiences in implementing inquiry-based lessons and strategies with colleagues and leave with additional lessons and strategies to implement inquiry-based science.

Learning Objectives

- Experience an investigation that models inquiry-based science.
- Understand the role of Data Analysis and a 4-part process for helping students turn data into evidence.
- Discover engaging strategies to boost student creative and critical thinking skills.
- Learn how to promote student integrity during investigations.
- Use oral and written discourse strategies to increase student ownership of their learning and promote the use of rich language
- Select and prepare a lesson where students learn science by doing science.

Focus Areas

Learning Environment	Scientific Inquiry	Habits of Mind
Oral and Written Discourse	Data Analysis	Creative Thinking
Rich Language		Critical Thinking
		Integrity

Workshop 1.4

C-E-R in the Collaborative Classroom

In this one-day workshop, learn how to guide students in creating first-rate investigation explanations. Utilize an explanation framework to help students write a claim that is explicitly supported by evidence and reasoning. Help students develop an openness to new ideas, and discover classroom culture strategies that encourage collaboration. Explore a variety of ways that students and teachers can construct meaning together in a rich learning environment. Share your experiences in implementing inquiry-based lessons and strategies with colleagues and leave with additional lessons and strategies to implement inquiry-based science.

Learning Objectives

- Experience an investigation that models inquiry-based science.
- Understand the elements that make up a sound explanation (claim, evidence, and reasoning).
- Utilize a framework to help students write claims that are explicitly supported by evidence and reasoning.
- Learn how to develop a classroom culture where students are open to new ideas.
- Discover strategies that encourage collaboration and the construction of meaning in a rich learning environment.
- Select and prepare a lesson where students learn science by doing science.

Focus Areas

Learning Environment	Scientific Inquiry	Habits of Mind
Collaboration	Explanation (Claim, Evidence, Reasoning)	Openness to New Ideas
Construction of Meaning		

For more information regarding VAEI's Sustained Training, go to:

www.vaei.org/prof-development

Year Two Workshops

Workshop 2.1

Lesson Sequences: Storylines in Science

In this one-day workshop, develop an understanding of how to combine lessons with sequences to meet the rigorous requirements of performance-based standards like NGSS. Learn how to work with storylines to develop lesson sequences. Learn strategies for increasing student self-direction and for sharing control of learning in your classroom. Discover various ways to increase student choice that are manageable and focused on your learning objectives. Share your experiences in implementing inquiry-based lessons and strategies with colleagues and leave with additional lessons and strategies to implement Inquiry-based science.

Learning Objectives

- Experience an investigation that models inquiry-based science.
- Understand how to use storylines to guide the development of lesson sequences.
- Increase student choice and ownership with strategies to share control of learning in your classroom.
- Set students up for success with strategies that develop self-direction.
- Select and prepare a lesson where students learn science by doing science.

Focus Areas

Learning Environment	Scientific Inquiry	Habits of Mind
Shared Control	Lesson Sequences	Self-direction
Student Choice		

Workshop 2.2

Connecting Science and Engineering

In this one-day workshop, learn how to integrate engineering design into science investigations. Learn an instructional model for engineering design and make connections to the inquiry-based science instructional model. Develop scientific habits of mind with strategies to strengthen student adaptability and perseverance. Design a classroom environment that supports risk-taking and learning from mistakes. Share your experiences in implementing inquiry-based lessons and strategies with colleagues and leave with additional lessons and strategies to implement inquiry-based science.

Learning Objectives

- Experience an investigation that models inquiry-based science with an engineering application.
- Learn an instructional model for implementing engineering design lessons.
- Cultivate a culture that supports risk-taking and learning from mistakes.
- Implement classroom strategies that strengthen student perseverance and adaptability.
- Select and prepare a lesson where students learn science by doing science.

Focus Areas

Learning Environment	Scientific Inquiry	Habits of Mind
Risk-taking	Engineering Design	Adaptability
		Perseverance

Year Three Support

VAEI will continue support in implementation by offering:

- Observations and Coaching
- Learning Lab Facilitation
- Assessment and Grading
- Course Mapping
- Advanced Questioning, Data Analysis, or Explanation Training

Workshop 2.3

Transform Any Lesson into an Inquiry Lesson

In this culminating one-day workshop, teachers discuss successes and challenges in implementing inquiry-based lessons and strategies. Take a traditional lesson and learn a process to transform the lesson into an inquiry-based lesson. Identify the lesson's place in a lesson sequence, and leave with the confidence and knowledge to transform any lesson into an inquiry lesson. Share and learn additional strategies to maintain a rich learning environment and to continually develop scientific habits of mind in your students. Solidify your professional network of teacher learners to further hone the craft of inquiry-based science.

Learning Objectives

- Experience an investigation that models inquiry-based science.
- Learn a process for transforming traditional lessons into inquiry lessons.
- Share and learn strategies to facilitate collaboration in an established rich learning environment.
- Share and learn strategies to develop habits of mind consistently and across all learning.
- Finalize and share learning portfolios as well as reflections on inquiry-based science.
- Participate in the VAEI online community to establish and maintain connections as part of your personal learning network.

Focus Areas

Learning Environment	Scientific Inquiry	Habits of Mind
• Maintaining a rich learning environment • Transforming lessons into Inquiry lessons • Continually strengthening habits of mind		

What teachers are saying about VAEI's professional development:

>> *"I love actually doing a lesson. Things don't seem so overwhelming when I do it myself."*

>> *"The small-group work time at the end was most valuable as I was able to gather ideas from fellow teachers and benefit from working alongside them.*

>> *"The lessons were great! I'm feeling more confident so it was great to refresh and grow instead of just try to figure it all out."*

>> *"Just learning about the whole structure of this model and the hands-on activities were so good for me."*

>> *"Hands on investigation working with a small group, and hand-outs on specific lessons were extremely helpful."*

>> *"It is wonderful and so appreciated to walk away with a lesson I need to teach. Thank you!"*

>> *"Loved this training. The presentation and hands-on training was very informative and easy to understand. I am leaving the training feeling more confident about teaching science."*

For more information regarding VAEI's Sustained Training, go to:

www.vaei.org/prof-development

Engage students and bring inquiry-based science to life!

For more information on VAEI's offerings, go to VAEI.org or call 616.234.5528.

Student Programs

Explore a variety of programs that engage students in thinking and acting like scientists.

Summer Camp • Field Experience • High School Journal Club • Out-Of-School Time Cohort Program • Science On Saturday

Professional Development

Develop classroom-tested strategies that transform instruction and engage students.

Teacher Workshops • Sustained Training • Customized Consulting • Science on the Grand Conference

Instructional Tools

nexgen inquiry®
Empowering Teachers. Engaging Students.

Get all of your instructional tools in one place! Go to nexgeninquiry.org for a free 45-day trial.

Downloadable Lessons
Search inquiry-based science lessons by grade level and/or standards. Download lessons to implement in your classroom.

Interactive Student Journal
Use, modify, or build inquiry-based lessons for your students in an interactive journal format. Assign lessons to students, track their progress, and provide formative and summative feedback within the web-based journal.

Classroom Resources
Discover a variety of research-based, practical products that support inquiry-based science.

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