



ASPEN
SCIENCE
CENTER

Preschool Education Program (PEP)

Children are natural scientists. Spend time with a three-year old, and watch as they explore the world around them – poking, prying, taking apart, throwing, dropping, tasting... They have a natural insatiable desire to understand their world and what makes it tick. This is exactly what scientists do every day.

Aspen Science Center believes that the inherent natural scientist in children of all ages must be supported and encouraged. Too often, children grow to view science as something difficult and foreign, losing touch with the processes that brought them wonder and inspiration while science was an integrated, but unlabeled, piece of their learning.

We are proud to announce the development of our Preschool Education Program, which will help reinforce STEM education in early childhood learning throughout the Roaring Fork Valley, and beyond. Through identifying and addressing obstacles that hinder engagement with science, our program will provide targeted supports to maintain and reignite the initial passion that children exhibit.



We are working closely with local preschools and educators as we develop this program, which has a heavy emphasis on teacher training and support. The program is being designed from the “bottom up” to meet the needs of educators, and will integrate with existing curricula and reinforce fundamental skills such as language, math and social interactions. In this way, the program not only teaches STEM, but reinforces other areas that are crucial to early childhood development.

At its heart, this program promotes an understanding of scientific processes and critical thinking. Grounding our program in core, process-based concepts promotes a scientific way of thinking that engages children with their own learning processes and encourages growth across all area of development.

We believe our approach will break new ground in early childhood STEM learning. While resources exist for preschool STEM education, we have not found another program that combines the scientific method, adaptive activities, science literacy, and ongoing teacher support in this way.

This program would not be possible without major funding from John and Jessica Fullerton, Mike and Becky Murray, Arny Porath and David Newberger. Please contact us today if you would like to support this important and groundbreaking work.

Program Overview



Program Goals

- Promote lifelong, fundamental science understanding through early exposure to foundational science practices and principles.
- Develop critical thinking skills through inquiry-based science exploration and scientific process
- Support language arts and math literacy, but also communication and social development
- Incorporate into existing curricula so as to decrease burden on teacher training

Our Unique Approach

- Not just science activities, but also a grounding in the Scientific Process
- ASC Educators are in the classroom leading activities and training teachers
- A complete “science in a box” modular design
- Take-home materials and activities to engage parents and families
- Aligned with CO standards and commonly used classroom curricula and assessments
- Certification coaching and documentation to help schools get better state ratings
- Encourages Scientific Literacy, supporting language arts goals and social development.
- Rigorous evaluations to ensure continual program improvement
- Certified teacher professional development course so teachers can earn credit hours

Kids are natural scientists. We want to support and encourage learning through guided, engaging exploration.

Four Key Components



ASC Educator Support
in the Classroom

ASC Educators are in the classroom every other week, leading kickoff activities, explaining core concepts, and providing teacher training



Extended Classroom
Support

Materials and instructions for teachers to be able to provide additional activities through the two weeks, including science journaling



Teacher Training and
Support

- Periodic formal continuing education with ASC/CMC course
- Help teachers demonstrate that they are meeting state standards
- Ongoing coaching and review with ASC staff as needed, designed to lead to teacher/school certification
- List of ASC-approved books, toys and activities that teachers can draw on. Toys and books available to borrow from ASC on a trial basis before purchasing



Parent Connection

Take-home summaries of what the child is learning, how parents can help reinforce concepts, additional activity ideas for families to do together

PEP Teaches Scientific Content and Process



Process

Observe > Predict > Hypothesize > Test > Conclude > Share

Students will learn and practice age-appropriate standards-based processes that support learning, and are encouraged to use this in their everyday play and activities. While all steps are used throughout, specific steps are focused on in turn. Learning Modules provide specific activities to use the process, which is also reinforced in the Science Journaling. May use *What Is a Scientist?* by Barbara Lehn as a foundation text.

Content

Learning Modules are created and lent by ASC to the teachers on a 2-week rotation (or longer if needed). ASC will lead a kick-off activity, which will also serve as science education modeling for the teacher. They provide activity guides and materials for further exploration throughout the following two weeks, led by the teacher. ASC will provide additional presence for teachers that require more practice or support. Teachers receive a box with:

1. A Teacher Guide, containing suggested activities or ways to incorporate the topic into other classroom areas (circle time, counting, etc.), example questions, suggestions, and language to use with students during free play to enhance science, a summary of helpful background knowledge, and instructions for the kick-off activity.
2. Expansion activities, which include relevant materials that may not always be present in the classroom, learning guides for students to encourage exploration with the topic, crossover materials with other aspects of the classroom, such as ASC-selected children's books, art projects, dramatic play suggestions, sensory incorporation, etc.
3. A bridge to home, with an explanation of what was learned during the kick-off activity, paired with a take-home product, suggested at-home activities and practice with the topic. Summaries will also be included for other activities kids choose to do, such as the art project, that teachers can attach and send home.

Learning Modules

1. Be a Scientist
2. Observing With the Senses
3. Sinking and Floating 1 & Sorting
4. Sinking and Floating 2 & Noticing Details
5. Light and Shadow 1 & Designing Experiments and Testing Predictions
6. Light and Shadow 2 & Designing Experiments and Testing Predictions
7. Light and Color
8. Air
9. Rolling and Sliding & Measuring and Comparing
10. Asking Questions and Finding Answers