

Creating environmental education programs based on the VA Standards of Learning

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Workshop Road Map

1. Introductions & Workshop Overview
2. VA Standards of Learning (SoL) & Curriculum Framework
3. Elit Lesson Analysis
4. Partnering with Schools
5. Wrap up & Next Steps



Virginia SOL

- SEPs: Science & Engineering Practices SoL x.1
- Content Standards SoL x.2 to....

Virginia Curriculum Framework

- SEPs: Indicated by a leaf icon 
- More details for each content standard:
 - ❖ Central idea
 - ❖ Vertical alignment: what students have been taught in earlier grades & will be taught in later grades (grade level connections)
 - ❖ Enduring understandings: key concepts & big ideas that students learn
 - ❖ Essential Knowledge & Practices: what students should know & be able to do related to the standard





Group Activity

Mapping Connections:

Where are there connections between concepts, SEPs, & EE supported field experiences?



Lesson/Program Analysis

What are the students doing in this lesson/program?

What science standards(s) does this lesson/program align with?

What SEPs are incorporated into this lesson/program?

How can this lesson/program be revised to better align with the standards?

WATER WONDERS

Water wonders outline:

1. Introduction to Arboretum/Arboretum etiquette
2. Why study water?
 - a. Beach ball activity
 - i. Choose a student to tally results, show method, with water at the head of another.
 - ii. Using an earth beach ball, instruct the student catching it reports the result either over land or over water.
 - iii. The data is recorded in the appropriate place.
 - iv. Continue until 20 or 25 tally marks are made.
 - v. Ask the students to calculate the percentage of the surface is covered by water.
 - vi. The result should indicate that approximately 70% of the surface is covered by water.
 - b. Water makes up about two-thirds of our body.
 - c. Water is essential for all life.
3. What is a watershed?
 - a. Group responses on overhead/board;
 - b. Underline words that fit and features that define a watershed;
 - c. Point out "official" definition on poster: land that drains into a river or body of water.
4. What are Virginia's major watersheds?

Water Wonders

Staff Lesson

Grade 4-6

Goal: Students will gain an overall understanding of how this relates to watersheds and ecosystems and the importance of water quality.

Key Concepts:

Knowledge: Students will learn what a watershed is and how they can affect a watershed in Virginia.

Skills: Students will use water quality test kits and use a macro invertebrate sorting sheet to identify organisms in Blandy.

Values: Students will learn the importance of water quality to the health of ecosystems and that many life forms are dependent on water.

Virginia SOLs addressed: Science- 3.1,3.6,3.9,3.10; Math- 3.17, 3.5; 5.11;6.11 Social Studies 3.6; VS 3.1

Materials:

- Water data collection sheets record data
- Laminated topographic maps
- Macro invertebrate sorting sheets
- Water testing equipment- Thermometers, pH strips, nitrate test tablets, and vials

Grade: 6

Goals: Students learn how to test for abiotic water quality indicators and what these factors tell us about water quality. Students understand the importance of macroinvertebrates as indicators of long-term health of aquatic environments in an ecosystem. Students understand that how we use the land can affect the health of our local watershed.

Lesson Objectives

Knowledge: Students explore water quality indicators and how they affect water quality. Students identify and evaluate macroinvertebrates as indicators of water quality. Students conduct field observations of how land is used and consider human impacts. Students examine where water comes from and where it goes.

Skills: Students use hand-held water testing equipment or water quality test tablets to measure water chemistry. Students analyze water quality indicators and describe what they mean to the health of an ecosystem. Students develop observation skills as part of a biotic survey of organisms. They measure, record, and analyze a variety of water quality indicators and describe what these indicators mean to the health of an ecosystem.

Values: Students appreciate the importance of water quality to the health of a system. Students develop an appreciation for a diversity of organisms as part of a healthy functioning ecosystem. Students develop awareness of the how land management impacts the Chesapeake Bay watershed.

Special Safety:

- Watch for holes and other tripping hazards while exploring grounds.
- Do not touch or pick up the prickly pear! Spines can hurt!
- Advise careful handling of organisms (do no harm).
- Use caution on rocks and near the water. Do not get in the water.

Virginia SOLs: Science (2018): 6.1, 6.6, 6.8, 6.9

Math (2016): 6.6

Materials:

Water Chemistry (see Appendix A: Water Chemistry Background Information)

Data sheet

Maps (one per group)

Buckets of water from water source

Direction pages and testing materials for the following tests:

- Thermometers
- pH test strips and color chart
- Nitrate tests-tablets and vials



Tips for Partnering with Schools

The environmental literacy learning continuum



Interpretation

Interpreter

Teaching about nature & human interactions with it

Learning: Informal; Free choice

Who: Community members

Focus: Experience nature; Personal connections

Methods: Themes & an interpretation plan

Sharing our
knowledge & skills
with others

Formal
Education

Teacher

Environmental education (natural & social systems)

Learning: Formal; Required (K-12)

Who: Students

Focus: Know & understand nature & human impacts

Methods: Learning standards & lesson plans

Environmental Educator Partnerships with Schools



What do we Know?

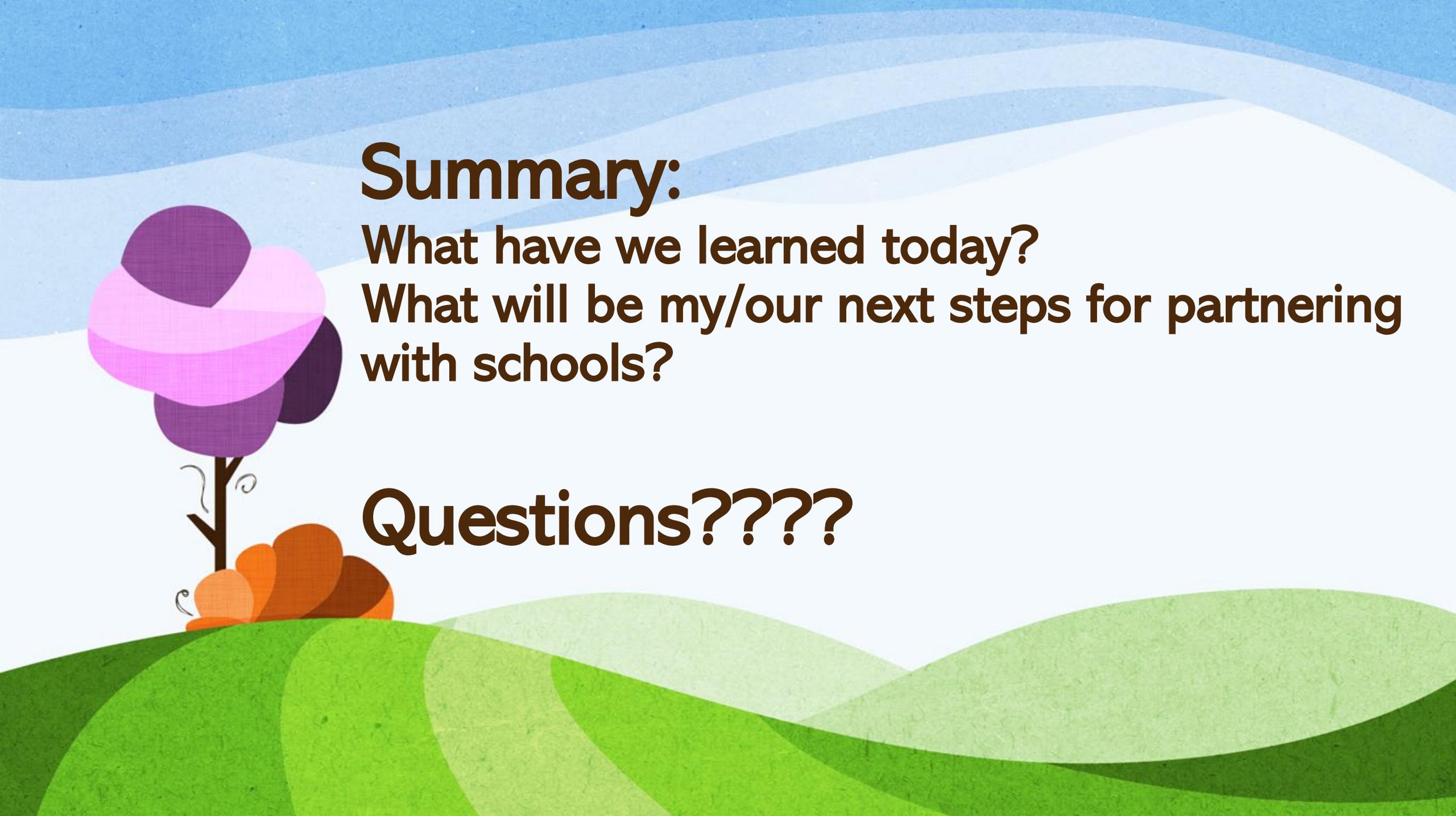
- Nature systems & organism knowledge
- Expertise in observing nature
- How to engage youth in learning about nature
- Outdoor learning expertise
- Tools/supplies for learning outdoors

Need to Know

- VA Standards of Learning (SoL)
- Who to contact at the school division or an individual school
- Your age group comfort level
- Specific needs of the school division, school, teacher
- Some of the environmental issues in your community

What you can do as a partner

- Develop a program or programs that target one or more SoL (science or history are good starts)
- Provide wonderful, safe outdoor learning spaces for students
- Provide unique learning experiences that students would not have in the classroom (must align with the standards & stated needs)
- Perhaps you could build a program to help students understand one or more environmental issues & think of ways to address them

A stylized landscape illustration. The background features rolling hills in shades of blue and white. In the foreground, there are rolling green hills. On the left side, a tree with a dark brown trunk and several large, rounded, purple and pink flowers stands on a small patch of orange and brown ground. The overall style is simple and graphic.

Summary:

What have we learned today?

What will be my/our next steps for partnering with schools?

Questions????

A stylized landscape illustration. The background features rolling hills in shades of blue and white. In the foreground, there are rolling green hills. On the left side, a tree with a brown trunk and several large, rounded, purple and pink flowers stands on a small patch of orange and brown ground. The overall style is clean and modern.

Thank you!

We'd love to continue this learning with you.

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