A Trail To Every Classroom (TTEC)
Curriculum Development Tool

UNIT DESIGN COVER SHEET

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School name, state and town: Christiansburg, VA

Title: Habitats of the New River Valley

Abstract/Vignette: Students at two elementary schools in Virginia’s New River Valley will gain a deeper understanding of local habitats, their impact on the local environment, and the importance of advocating for conservation through outdoor experiences and project-based learning.

Grade level(s): Please check all that apply.

☐ K-2    ☑ 3-5    ☐ 6-8    ☐ 9-12    ☑ College and Lifelong Learning

Discipline: Please check all that apply.

☑ Art and Music    ☑ Health and PE    ☐ Foreign Language

☑ Literature and Language Arts    ☐ Mathematics    ☑ Science

☑ Social Studies and Geography    ☑ History

Year Developed: 2015

Period (month long unit vs. week long): month unit

Teaching environment:

☑ In the Classroom (indoors)    ☐ On the Trail

☑ In the Community (outdoors)    ☐ Online/Virtual
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UNIT DESIGN TEMPLATE

<table>
<thead>
<tr>
<th>Unit Title:</th>
<th>Habitats of the New River Valley</th>
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</thead>
<tbody>
<tr>
<td>School:</td>
<td>Christiansburg Elementary School, Falling Branch Elementary School</td>
</tr>
<tr>
<td>Grade level/s:</td>
<td>3rd</td>
</tr>
<tr>
<td>Discipline/s:</td>
<td>Language Arts</td>
</tr>
<tr>
<td>Unit Designer/s:</td>
<td>Colleen Gentry and Rebecca King</td>
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</tbody>
</table>

Stage 1 – Desired Results

- What do we want students to know, understand, and be able to do?
- How can we use students’ place (home, classroom, school and schoolyard, neighborhood, community) to help them learn this?
- What real community needs and opportunities are we trying to address?

A. Big Ideas
The high-level ideas, concepts, principles or processes for my TTEC unit include:
- Stewardship, community, citizenship, power of place, advocacy, communication, community pride, raising awareness of human impact in a habitat

B. Enduring Understandings
Students will understand that:
- A community’s natural places rely on citizen knowledge, care, and attention to remain both wild and accessible.
- Outdoor spaces provide a way to learn and have fun.
- It is our job to care for our outdoor spaces and to teach others how to appreciate and preserve them.
- Living beings (humans, plants, and animals) in a habitat are interdependent

C. Essential Question(s):
Students will keep considering:
- How can outdoor spaces (habitats) benefit a community?
- How can people help the outdoor spaces in their community?
- How can knowing more about outdoor spaces (habitats) be important?
- What are some ways to educate people about wild places?
- How can groups work together to preserve these places?
- How can students share their learning to make an impact in their community?

D. Content Standard(s):
English Standards of Learning for Virginia Public Schools

3.1 The student will use effective communication skills in group activities.
3.2 The student will present brief oral reports using visual media.

3.7 The student will demonstrate comprehension of print and electronic resources.

3.9 The student will write for a variety of purposes.

3.11 The student will write a short report.

Science Standards of Learning of Virginia Public Schools

3.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which:
   b) predictions are formulated using a variety of sources of information;
   g) questions are developed to formulate hypotheses;
   j) inferences are made and conclusions are drawn;
   k) data are communicated;

3.4 The student will investigate and understand that adaptations allow animals to satisfy life needs and respond to the environment.

3.5 The student will investigate and understand relationships among organizations in aquatic and terrestrial food chains.

3.6 The student will investigate and understand that ecosystems support a diversity of plants and animals that share limited resources. Key concepts include:
   a) aquatic ecosystems;
   b) terrestrial ecosystems;
   c) populations and communities; and
   d) the human role in conserving limited resources.

3.7 The student will investigate and understand the major components of soil, its origin, and its importance to plants and animals, including humans.

3.10 The student will investigate and understand that natural events and human influences can affect the survival of species. Key concepts include:
   a) the interdependency of plants and animals
   b) the effects of human activity on the quality of air, water, and habitat
   c) the effects of fire, flood, disease, and erosion on organisms
   d) conservation and resource renewal

History and Social Science Standards of Learning for Virginia Public Schools

3.6 The student will read and construct maps, tables, graphs, and/or charts.

3.10 The student will recognize the importance of government in the community, Virginia, and the United States of America by
   a) explaining the purpose of rules and laws;
   b) explaining that the basic purposes of government are to make laws, carry out laws, and decide
if laws have been broken;
c) explaining that government protects the rights and property of individuals.

E. Place-based Service Learning Lens (Assumes PBSL Principle #5 Integrated & Principle #6 Rigorous):

Grounded in Place
In what ways is your unit a direct reflection of local landscapes, resources, culture, and values? Why does doing this unit with these students in this community make sense?

Our unit is all about the local area – learning from it, teaching others about it, and having pride in place. It is essential that our students, as area residents, are the ones doing the research, education, and advocacy for the benefit of others in the community.

Real
What authentic, real-world need or opportunity exists in your community that students will address through their project?

There is tremendous opportunity for local residents and students to enjoy the outdoors through hiking. However, there is a lack of knowledge about and sense of responsibility for natural areas and ecosystems. Many families do not have a tradition of spending time together in nature, and may not be aware how easy and important it is to enjoy quality time in this way. Many college students like hiking but are not familiar with the area, and do not feel a sense of responsibility to care for local trails and habitats.

Empowering
How will your students help determine what project they take on? How will they help design the project, make decisions along the way, and evaluate their success?

We hope to inspire our students to brainstorm ways to get their message across as well as better understand their role in their local habitat. Students can rely on their own knowledge and preferences to determine how they best express information – through written language, oral language, photography or art, etc.

Collaborative
What opportunities will students have for mutually beneficial collaboration with other disciplines, community or public land partners? To answer this, identify how each of the partners will benefit.

We hope to collaborate with many important partners. First and foremost, our most important partners will be our school colleagues and the children’s families. Other partners may include local government organizations, local businesses, nonprofits, and civic organizations, local outdoor organizations, and media.

F. Acquisition:
Students will know: Students will understand the importance of protected outdoor spaces and the importance of spreading this knowledge to others in the community.

Students will be skilled at: Collecting, analyzing, comparing, and synthesizing scientific information about their local habitat. Students will be skilled at using different forms of communication – verbal, oral, visual, electronic – in order to spread their message and provide information and advocacy.
<table>
<thead>
<tr>
<th>Performance Task(s):</th>
<th>Evaluative Criteria</th>
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<tbody>
<tr>
<td><strong>Learners will show that they really understand by:</strong></td>
<td><strong>Pre assessment:</strong> survey and open response prompt to gauge student prior knowledge of and attitudes towards local outdoor spaces (habitats)</td>
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<tr>
<td>- Demonstrating comprehension of the interconnectedness of living beings (plants, animals, humans) in a habitat.</td>
<td><strong>Post assessment:</strong> same survey and open response prompt to evaluate shift and/or growth in student knowledge and attitudes</td>
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<td><strong>Students will know…</strong></td>
<td><strong>Writing samples:</strong> nature journals, persuasive writing, informative writing, oral reports, visual media, charts and maps, brochures</td>
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<tr>
<td>- Key vocabulary: habitat, ecosystem, conservation, cause and effect, local, regional, government, adaptations, predator, prey, producer, consumer, decomposer, hypothesis, prediction, inference, resource, interdependency, citizen, advocacy, persuasive, informative</td>
<td><strong>Evaluative Criteria (score sheets, rubrics, observation check-lists, grading key)</strong></td>
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<tr>
<td>- The components of a habitat (soil, plants, animals, humans) and how they impact one another</td>
<td><strong>Writing sample and oral report rubric</strong></td>
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<td>- The components of government and how it shapes human actions and the community</td>
<td><strong>Observations of student discussions</strong></td>
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<tr>
<td>- The components of different forms of written and oral communication</td>
<td><strong>Content tests and quizzes</strong></td>
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<tr>
<td><strong>Students will be skilled at…</strong></td>
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<tr>
<td>- Collecting scientific information from their environment</td>
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<td>- Analyzing and evaluating the information collected</td>
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<td>- Making connections</td>
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<td>- Identifying problems and recommending solutions</td>
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<td>- Interpreting ideas from different perspectives</td>
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<td>- Deciding the best method for communicating information</td>
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<td>- Effectively presenting information and advocating for a cause through a variety of communication mediums and strategies</td>
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| Other Evidence: | |
| **Students will show they have achieved Stage 1 (Desired Outcome) goals by…** | |
| | **Ultimately, we want students to become informed advocates for preserving and protecting local outdoor spaces in their community, based on knowledge of habitats and interconnectedness of living things.** |
### Learning Activities:

#### Day 1: Pre-flection and pre-assessment
- Introduce concepts of habitat and ecosystem, prompt students to discuss what they already know about these topics
- Challenge students to go deeper in their thinking – are habitats important? Why? Do your actions impact habitats? If so, how?
- Introduce concepts of conservation and leave no trace, prompt students to discuss what they already know about these topics and compile a written list of student ideas
- Have students write independently about what they already know, what they expect to learn, and what questions they have about the upcoming unit and the concepts we discussed

#### Day 2: Unit introduction (vocabulary, objectives)
- Use visuals to present key unit vocabulary associated with Virginia SOL 3.6 The student will investigate and understand that ecosystems support a diversity of plants and animals that share limited resources.
- Explain unit learning objectives to students – build excitement for all of the new knowledge and skills they will gain
- Preview next day’s habitat observations and go over procedures for how to conduct scientific inquiries and observations effectively (quiet, observant, using all senses, using words and pictures). Present a model for examples of journaling in nature

#### Day 3: Habitat Observations
- Review procedures for being out of doors
- Provide targeted support and guidance as students engage in journaling and observations; praise and offer suggestions as necessary as students work both independently & with partners
- *Note* this step may actually take several days to develop student observation skills and journaling stamina

#### Day 4: Discussion, sharing, and making connections
- Invite students to share their observations
- Guide students to make connections between their observations and the academic concepts and vocabulary associated with this unit; for example, help students turn their notes into a visual representation of a food chain or life cycle
- Create a class anchor chart based on student responses which they can use for future reference
- Briefly check in on how student understandings and feelings have changed since the initial pre-flection

#### Day 5: Synthesizing information, brainstorming next steps
- Discuss Virginia SOL 3.10 The student will investigate and understand that natural events and human influences can affect the survival of species.
- Guide student discussion towards an understanding of the importance of their actions on their environment.
- With students, brainstorm ideas for how this message can be spread to others; and why is the message important

### Progress monitoring through pre-assessments, simulations, formative & summative assessments

- Progress monitoring will occur through daily observations as well as more formal periodic check ins through discussion, writing, conferences
- Pre and post assessment to assess understanding of science standards
- Pre and post reflection written activities
- Final projects (graded by rubrics)
Day 6-10: Further research and writing
- Allow students to choose which method of communication they prefer (informational brochure, persuasive essay, oral report, multimedia presentation, song, poem, etc.) based on their own skills, preferences and learning style. The choices will come from the list students brainstormed the day before.
- Provide additional materials for student research – books, websites, newspapers, magazines, blogs, and videos. Guide student research, with differentiated levels of support based on student needs.
- Over the next several days, assist students with completing their projects through individual conferences, use of checklists and rubrics, facilitating peer review, etc.
- Give students opportunities to practice presenting their final product, ask higher-order thinking questions to prompt students to go further and deeper in their thinking and communication

Day 11: Presenting
- Review procedures for small group class presentations
- Presentations will be organized through “poster sessions”; audience members will be required to present feedback and questions to each presenter
- Invite members of the school and local community to attend
- Use rubrics to assess student work and understanding

Day 12: Unit test and post-reflection
- Give unit assessment, students work independently with accommodations as needed
- Lead group discussion revisiting unit vocabulary, themes, and essential questions, discuss how student learning and opinions have changed over time
- Students write a final reflection summarizing their learning journey

Adaptations

**Learner-centered and context-sensitive adaptations for our TTEC unit include:**
- Allow students to express themselves through the means that best matches their learning style (oral, visual, written expression, music, etc.)
- Provide differentiated support on academic tasks; for example, allow students with fine motor difficulties to type rather than write, provide sentence starters or prompts to certain students, provide behavior and expectations reminders as needed, read aloud material to students with reading difficulties, provide visual models of expected work, provide access to research and reference materials on many different text levels
- Allow for peer support at all stages of the unit

Reflections

**Post-instruction reflections by TTEC unit designer(s)/ instructor(s) include:**
- Based on our experience on our Leave No Trace field trip, we already have begun compiling ideas about best practices and potential challenges. We found that our students really enjoyed spending time in nature and we feel inspired by their enthusiasm and enjoyment of local spaces. We have also given thought to the written responses students generated after the field trip, and can use these as a starting point for further instruction.
- As educators, we will meet during and after the unit to reflect on successes and challenges,
make adjustments as needed, and plan for changes we would make for subsequent years.
- We will create written notes of our debriefing to be used as reference later on.
- We will also engage in informal conversations with students and parents about the unit and share these comments with our colleagues to better inform our instruction.
- As we were going along, we were so excited that this unit touches upon so many diverse learning standards from language arts, science, and social studies. We realize that our learning plan from Stage 3 (as presented here) does not include specifically addressing each of these standards, but we believe that they are still connected to student learning.

**Attachments:**
Include substantial supporting materials such as:
- Detailed lesson plans
- Partners contact list
- Instructional materials and supplies
- Resources: books, articles, web links
- Exemplars and benchmarking models
- Checklists and rubrics
- Diverse samples of student work/artifacts
- Press releases