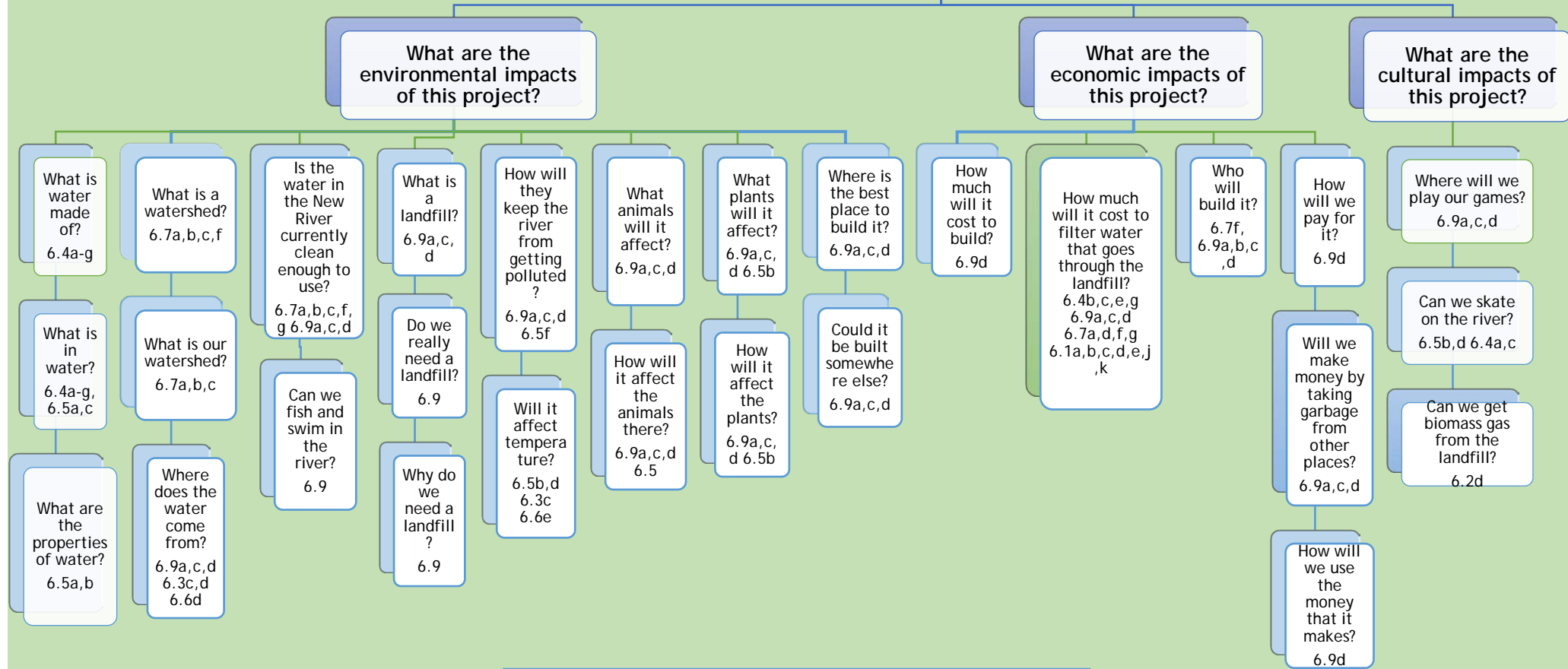


Water and Living Systems

Scenario: Because of easy access to I-77, Carroll County has been selected as a site for a Southwest VA Regional Landfill. Where in Carroll County could this Landfill be built that would mitigate the effects it has on the New River Watershed?

How can we mitigate the effects of human activity on Virginia watersheds?



Culminating Activity: Students will present their findings to the Carroll County Supervisors on the cost/benefit of this facility and make recommendations to the board.

Water and Living Systems

How can we mitigate the effects of human activity on Virginia watersheds? What are the environmental impacts of this project?

- What is water made of? 6.4a-g
Atom builder, Element Builder Gizmo

- What is in water? 6.4a-g, 6.5a,c
Element Builder Gizmo, Alien Juice Bar Computer game,
VA DOE 6.5b Scope and Sequence Activity “Water Testing”
VA DOE 6.5b Scope and Sequence Activity “Water Quality”

- What are the properties of water? 6.5a,b
VA DOE 6.5 b Scope and Sequence Activity “Molecular Attraction” and “Universal Solvent”

Water and Living Systems

How can we mitigate the effects of human activity on Virginia watersheds? What are the environmental impacts of this project?

- What is a watershed? 6.7a,b,c,f

Design challenge: Students will build a model that has at least 3 rivers which drain into the same body of water,

VA DOE Scope and Sequence Activity “The Key to Life”,

VA DOE Scope and Sequence Activity “Where are Virginia’s watersheds?”,

VA DOE Scope and Sequence activity “Wetlands”

VA DOE Scope and Sequence Activity “Stream Flow and Slope”

- What is our watershed? 6.7a,b,c

VA DOE Scope and Sequence Activity “Where are Virginia’s watersheds?” and “Wetlands”

- Where does the water come from? 6.9a,c,d 6.3c,d 6.6d

“Drop in the Bucket” Project Wet/Save Our Streams demonstration

VA DOE Scope and Sequence Activity “Waste Not, Want Not”

Water and Living Systems

**How can we mitigate the effects of human activity on Virginia watersheds?
What are the environmental impacts of this project?**

- Is the water in the New River currently clean enough to use? 6.7a,b,c,f,g 6.9a,c,d
Field trip

- Can we fish and swim in the river? 6.9
 - "Save our Streams" - water testing, water quality, pH, turbidity, macro and micro organisms, dissolved oxygen

Water and Living Systems

How can we mitigate the effects of human activity on Virginia watersheds? What are the environmental impacts of this project?

- What is a landfill? 6.9a,c,d
www.teachengineering.org activities “Eek, It Leaks” (design challenge)
“Landfills: Building Them Better” (design challenge), “Design, Build, and Test Your Own Landfill”
- Do we really need a landfill? 6.9
VA DOE Scope and Sequence Activity “Conservation and the Environment”
- Why do we need a landfill? 6.9
VA DOE Scope and Sequence Activity “Conservation and the Environment”

Water and Living Systems

**How can we mitigate the effects of human activity on Virginia watersheds?
What are the environmental impacts of this project?**

- How will they keep the river from getting polluted? 6.9a,c,d 6.5f
VA DOE 6.5 b Scope and Sequence Activity “Water Quality”

- Will it affect temperature? 6.5b,d 6.3c 6.6e
Gizmo – “Coastal Winds and Clouds”

Water and Living Systems

How can we mitigate the effects of human activity on Virginia watersheds? What are the environmental impacts of this project?

- What animals will it affect? 6.9a,c,d
VA DOE Scope and Sequence Activity “The Key to Life”
- How will it affect the animals there? 6.9a,c,d 6.5
VA DOE Scope and Sequence Activity “The Key to Life”
- What plants will it affect? 6.9a,c,d 6.5b
VA DOE Scope and Sequence Activity “The Key to Life”
- How will it affect the plants? 6.9a,c,d 6.5b
VA DOE 6.5 b Scope and Sequence Activity “The Key to Life”

Water and Living Systems

**How can we mitigate the effects of human activity on Virginia watersheds?
What are the environmental impacts of this project?**

- Where is the best place to build it? 6.9a,c,d
 - Topographic Maps - exploring elevation and run-off

- Could it be built somewhere else? 6.9a,c,d
 - Topographic Maps - exploring elevation and run-off

Water and Living Systems

How can we mitigate the effects of human activity on Virginia watersheds? What are the economic impacts of this project?

- How much will it cost to build? 6.9d
 - Internet Research - exploring construction companies and costs

- How much will it cost to filter water that goes through the landfill? 6.4b,c,e,g 6.9a,c,d 6.7a,d,f,g 6.1a,b,c,d,e,j,k
Agriculture in the Classroom activity: Streambed design challenge, water filtration system creation with pebbles coffee filter and sand

- Who will build it? 6.7f, 6.9a,b,c,d
 - Internet Research - exploring construction companies and costs

Water and Living Systems

How can we mitigate the effects of human activity on Virginia watersheds? What are the economic impacts of this project?

- How will we pay for it? 6.9d
 - Explore differences between taxes and charges for dumping
 - Internet Research - What do other communities do?
 - Dilemma Cards - debate pros and cons
- Will we make money by taking garbage from other places? 6.9a,c,d
 - Dilemma Cards - debate pros and cons
- How will we use the money that it makes? 6.9d
 - Dilemma Cards - debate pros and cons

Water and Living Systems

**How can we mitigate the effects of human activity on Virginia watersheds?
What are the cultural impacts of this project?**

- Where will we play our games? 6.9a,c,d
 - Dilemma Cards - debate pros and cons

- Can we skate on the river? 6.5b,d 6.4a,c

VA DOE 6.5 b Scope and Sequence Activity “Water Formations” and “How Dense Can It Be?”

- Can we get biomass gas from the landfill? 6.2d
<http://www.resourcefulschools.org/teachers/lesson-plans/65> activity