

7th Grade Science STEAM Integration

Unit 8: Matter and Energy in Ecosystems

Topic: Digital Art and Design

Time: 3 Days

Standards:

[MS-LS 1-6](#): Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.
[MS-LS1-7](#): Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.
[MS-LS2-2](#): Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
[MS-LS 2-3](#): Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
[MS-LS 2-4](#): Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
[MS-ESS2-1](#): Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.

Scenario

You've been hired by the comedy team at Science TikTok Studios to create a funny, educational video about the carbon cycle and energy flow in ecosystems. Your video will teach your classmates about photosynthesis, respiration, and carbon movement through living and nonliving things — but with jokes, costumes, and over-the-top acting. You'll work in a production team to write, act out, and edit a short comedy sketch that brings molecules and energy to life!

Success Criteria

I can create a student-acted comedy video that clearly and humorously explains how carbon and energy cycle through ecosystems.

Lesson Outline

Day 1: Brainstorm, Write, and Plan

1. Hook (5 min):
 - Watch a short, funny science video (e.g., Amoeba Sisters, Bill Nye, or student-made TikToks).
2. Carbon Cycle Review (10 min):
 - Recap key events:
 - Photosynthesis (plants take in CO_2 , release O_2)
 - Respiration (animals take in O_2 , release CO_2)
 - Decomposition (carbon returned to soil)
 - Combustion (optional human impact angle)
3. Skit Brainstorm (15 min):
 - Choose a concept:
 - "Carbon's Wild Ride"
 - "Energy Dating Game"
 - "The Real CO_2 Wives of the Carbon Cycle"
 - Write a rough script:
 - Who are the characters? (Carbon Dioxide, The Sun, Sugar Molecule, a Decomposer, etc.)
 - What is the setting? (Inside a leaf, a campfire, animal's

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- What's the conflict or gag? ("Carbon wants to settle down but keeps getting released!")

4. Storyboard + Assign Roles (15 min):

- Who's acting? Who's filming/editing?
- What props or costumes do we need? (sunglasses for the Sun, leafy scarf for a plant)

Day 2: Rehearse and Film

Objective: Act out and film the scenes for the comedy skit.

1. Rehearsal Time (10 min):
 - Practice timing, joke delivery, scientific clarity
2. Filming (30 min):
 - Use phones or tablets
 - Record multiple scenes or locations if needed
 - Capture visual representations (carbon moving, energy transfers)
3. Backup B-Roll or Voiceover (5 min):
 - Capture carbon moving in slow motion
 - Record molecule "interviews" or energy "weather reports"

Day 3: Edit and Premiere

1. Edit in Adobe Express or iMovie (25 min):
 - Add text labels, music, sound effects
 - Keep video under 3 minutes for clarity and engagement
2. Classroom Screening Party (15 min):
 - Watch each group's video
 - Peer feedback: "Funniest line?" / "Most creative way to show carbon?"
3. Reflection (5 min):
 - What did your video teach others about energy and carbon



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Video Must-Haves:

- At least 3 carbon cycle processes represented (e.g., photosynthesis, respiration, decomposition)
- One element of energy transfer (e.g., sunlight → sugar → animal movement)
- Humor! Wordplay, silly characters, costumes, or dramatic reenactments
- Voiceover or subtitles for clarity
- Bonus: reference to human impact (deforestation, fossil fuel use)

