

Substitute Guide: Food Webs and Energy Flow

Grade: 4 **Subject:** Science **Time:** ~45 min core + ~15 min extension Science

Read this first (1 minute)

You do not need a science background to run this. Everything students need is printed in their packet. There are **no lab materials and no hazards** — it is all on paper with a pencil. The whole packet takes about 45 minutes, plus an optional 15-minute activity for early finishers. Your job is to hand out the packet, read the start-up script aloud, and keep the room working quietly.

Learning goal (plain language)

Students learn that energy in a meadow starts with the **Sun**, that **producers** (plants) make their own food, **consumers** eat other living things, and **decomposers** break down dead things. They read a **food web** where each **arrow means "energy goes to"** and points toward the eater. Then they label organisms, trace a food chain, and predict what happens when one living thing is removed.

Standards alignment

Framework: 19 TAC Chapter 112 (Grade 4 Science, 2021 TEKS). Focus: food webs, energy flow, and the roles of organisms (producers, consumers, decomposers) in an ecosystem.

- **Provisional SE (food webs / energy flow):** describe how energy flows through a food web, from the Sun to producers to consumers. verification_status: pending
- **Provisional SE (roles of organisms):** identify and describe the roles of producers, consumers, and decomposers in an ecosystem, and predict the effect of a change to the web. verification_status: pending

Provisional — the specific section number and student-expectation codes are pending educator verification against the current official TAC source.

Standards are paraphrased here, not quoted, and this packet does not claim formal alignment to the TEKS. Please confirm the section and codes against your official source.

Setup Before class (5 min)

- Count and hand out one **student packet** per student.
- Confirm each student has a **pencil**. No calculators, computers, or lab items are needed.
- Write the date on the board and remind students to fill in the name line.
- Keep the **answer key** with you — it is a separate file and is **not** in the student packet.

Materials What's needed

- Printed student packet (about 3–4 pages) per student.
- Pencil per student.
- This guide and the separate answer key (teacher only).
- No technology, no calculator, no lab equipment, no safety hazards.

Timing Suggested pacing (~45–60 min)

Segment	Time	What students do
Start — Notice & Wonder	5 min	Q1–Q2 warm-up
Build — Read the science	5–10 min	Read box, word bank, Figure 1; Q3
Apply — Use the food web	20 min	Q4–Q7 (label, trace, what-if, O/I)
Explain — CER	5–10 min	Q8 claim/evidence/reasoning
Close — ACE	5 min	Articulate / Connect / Extend
Continue — early finishers	optional ~15 min	Add a rabbit and draw its arrows

Script Read aloud to start

"Today's assignment is a paper science activity called *Food Webs and Energy Flow*. You will work by yourself with just a pencil — no computers and no supplies. First, do the two warm-up questions at the top. Then read the short box and look at the food-web picture. In the picture, every **arrow means energy goes to** whatever eats it — the arrow points to the eater. After that, use the picture to answer the questions. If a question is tricky, skip it and come back. You may read the words out loud to yourself. Put your name, class, and date at the top now. You have about 45 minutes — raise your hand if you need a word read to you."

Support When students ask for help

- **You may read any part aloud** to a student or the whole class.
- If they are stuck, point them to the **Word Bank** and **Figure 1** — the ideas they need are right there.
- For the arrows, remind them: "follow the arrow to see who gets the energy — it points to the eater."
- Do **not** give answers; prompt with "What does the arrow point to?" or "What does that animal eat in the picture?"
- It is fine if a student cannot finish the optional early-finisher task.

Access Accommodations & language support

- **Read-aloud** of any passage or question is allowed for all students.
- Point students to the **sentence starters** and the **Word Bank** (definitions provided).
- Extended time is fine; the core can stop after Q8 if time runs short.
- Students may answer in short phrases or by pointing/labeling if writing full sentences is a barrier, as long as the idea is clear.
- The packet is grayscale-safe — it prints and reads clearly in black and white.

Tools Allowed & not allowed

Allowed: pencil, the printed packet, quiet self-read-aloud. **Not needed / not allowed:** calculator (no math required), phones, computers, lab materials.

Collect at the end: Collect every packet, finished or not, with names on them. Stack them for the teacher. Note on a sticky how far most students got and any questions that caused confusion.

Answer key: The **answer key is a separate file** (answerkey.html) and is for the teacher only. Please do not hand it to students.

Teacher follow-up (for the returning teacher)

Watch for the common idea that food-web arrows point from the eater to its food — they point the other way, toward the eater, because they follow the energy. Also watch for "the Sun is a consumer" and "removing one thing changes nothing." A quick next-day discussion tracing energy from the Sun to a producer to consumers, and a "what if we remove this?" round, would reinforce these well. The CER (Q8) responses show who can use an arrow from the web as evidence.

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