

Substitute Guide: Mixtures and Solutions

Grade: 5 **Subject:** Science **Time:** ~45 min core + ~15 min extension Science

Learning goal (plain language)

Students learn that a **mixture** is things put together that keep their own properties, and that a **solution** is a special mixture in which one part **dissolves** so it looks the same all the way through (like salt water). They also learn that a mixture can be **separated** using physical properties — by sifting, a magnet, filtering, or evaporating. **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.

Standards alignment

Framework: 19 TAC Chapter 112 (Grade 5 Science, 2021 TEKS). Focus: mixtures and solutions, and separating mixtures using physical properties.

- **Provisional SE (mixtures/solutions):** identify a solution as a mixture that looks the same throughout because a part dissolves. verification_status: pending
- **Provisional SE (separating mixtures):** separate a mixture using physical properties (sift, magnet, filter, evaporate). verification_status: pending

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

(Standards are paraphrased here, not quoted, and this packet is not claimed to be "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 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

Segment	Time	What students do
Build — Read the science	5–10 min	Read box, word bank, Figure 1; Q3
Apply — Use the data	20 min	Table 1; Q4–Q6
Explain — CER	5–10 min	Q7 claim/evidence/reasoning
Close — ACE	5 min	Articulate / Connect / Extend
Continue — early finishers optional ~15 min		Separation plan for salt + sand + iron

Script Read aloud to start

"Today's assignment is a paper science activity called *Mixtures and Solutions*. You will work by yourself with just a pencil — no computers and no lab supplies. First, do the two warm-up questions. Then read the short box and look at the picture. After that, use the chart to answer the questions. If a question is tricky, skip it and come back. Write in sentences where it asks you to explain. 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.
- Remind them the chart (Table 1) has all the clues for Q4 and Q5.
- Do **not** give answers; prompt with "What does the chart show?" or "Can you see the parts, or does it look the same all through?"
- 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 Q7 if time runs short.
- Students may answer in short phrases 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 "dissolving makes something disappear" — the sugar or salt is still there and can be brought back by evaporating the water. A quick next-day demo or discussion sorting real mixtures into "plain mixture / solution" and matching each to a separation tool (sift, magnet, filter, evaporate) would reinforce this well. The CER (Q7) responses show who can use a chart clue as evidence.

