Springs & Groundwater, Part 2 — TEACHER ANSWER KEY

Video Guide — "How Springs Work" with Craig the Geologist

Do not print for students. Short-answer responses are sample wording — accept equivalent ideas.

Part 1 — Where Springs Come From

1. **Water table** — a spring is where the water table intersects the ground surface.
2. Once the land drops below the water table, the water can't stay underground (there's no ground to hold it), so it flows out onto the surface — that outflow is a spring.

Part 2 — Iargo Springs Up Close

3. **"Many waters."**
4. **Clay.** A dense, impermeable layer.
5. **Horizontally / sideways.** Blocked from going down, the water runs along the top of the clay and exits the hillside.
6. Most springs start as wet mud, become a slow trickle, then a small rivulet that builds into a larger stream — nothing dramatic. As Craig puts it, just the spot where the earth sprang a leak.

Part 3 — Three Ways Water Meets the Surface

7. **Lowers.** The leaking slope drains until the water table drops to a stable level.

Completed table:

Where the water table meets the surface	Drainage	What forms?
A large depression with no outlet	No drainage	Lake
An area with great drainage	Water flows away	River
Flat land, water table just below surface	Poor drainage	Swamp / wetland

8. **The water table / groundwater.** Surface-water elevation equals the nearby water-table elevation.

Part 4 — Rivers Feeding (or Losing) Groundwater

9. **Higher.** This is a gaining stream — groundwater flows in and the river grows.
10. **Lower.** This is a losing stream — the river leaks water into the ground and shrinks.
11. **The Colorado River.** It peters out before reaching the Mexican border, mostly by losing water into the ground rather than to evaporation.

Part 5 — Floodplains & Sandy Ground

12. **Floodplain.**
13. Sand has very high porosity and permeability, so it soaks up a large volume of water quickly and releases it slowly. During heavy rain, water sinks in instead of running straight to the river, and the river rises slowly instead of spiking — a natural buffer.
14. **Flood-proof**; more flood-**resistant**. No location is truly flood-proof.

Part 6 — Canyons & the Water Table

15. **The water table (the groundwater level).** A river cuts down toward the water table for stability — not toward sea level or the nearest lake.
16. **Canyon** in strong rock (Grand Canyon, Black Canyon of the Gunnison); a very deep **valley** in softer sediments.

Wrap-Up — Vocabulary Check

Write the letter of the correct definition next to each term.

____ **(B) Spring**	**A.** A river that loses water into the ground because the water table sits lower than the river.
____ **(D) Impermeable layer**	**B.** A point where the water table meets the ground surface and water flows out.
____ **(F) Gaining stream**	**C.** A river carving downward over time toward the level of the water table.
____ **(A) Losing stream**	**D.** A dense layer (like clay) that water can't pass through, forcing it sideways.
____ **(E) Floodplain**	**E.** Low-lying land beside a river that, by definition, floods.
____ **(C) Downcutting**	**F.** A river fed by groundwater because the water table sits higher than the river.