



Setup & Running the Session

TEKS	Chemistry 5(C): periodic trends
Format	Team escape room, 2 to 5 students per team
Time	30 to 45 minutes (plus 5 minutes setup)
Best placement	Unit 3 review, after atomic radius, shielding, nuclear charge, ionization energy, electronegativity, and reactivity
Versions	Digital: clues live inside the interactive. Paper + Digital Locks: teams solve the printed clue cards and enter codes on screen.

Before class

- **Paper version:** print one **Clue Card Packet** (5 pages) per team. The packet is identical for every team.
- **Both versions:** print one **Survival Log** per team so the reasoning is on paper, not just the codes.
- One device per team (a Chromebook works well). Each team needs a periodic table; the on-screen Field Guide has one.
- Optional atmosphere for Station 1: dim the lights for the first few minutes so the "flashlight" story lands.

Running a live session

- 1 Open the resource page and click **Start a live session**. Choose **Digital** or **Paper + Digital Locks** and add a class label.
- 2 Open the **Projector Board** from your monitor and put it on the screen. It shows the join code and team names as they join.
- 3 Share the student link (Canvas "Launch in New Tab" button works best). Teams enter the code, a team name, and each member's **first name + last initial**.
- 4 When every team shows up, click **Start the Clock**. All teams start together and the game goes fullscreen.
- 5 Watch the **monitor** for progress, penalties, and integrity flags. Rename or hide any inappropriate team name there.
- 6 Click **End Session** when time is up, then **Export CSV** for your records. Teams can download a Survival Report PDF.



Scoring, Integrity & Privacy

Scoring

Event	Effect
Wrong code	+1:00 penalty, and that lock is frozen for 5 seconds
Hint	+3:00 penalty, once per station; the hint stays visible after a refresh
Effective time	Elapsed time + all penalties. Lowest effective time wins.
Late join	A team that joins after the clock starts is timed from when it joined

Integrity

- Answers are checked on the server. They are not in the page code, so they can't be found with dev tools.
- Play is fullscreen with copy, paste, and right-click blocked. Leaving fullscreen blurs the game until the team returns; **the clock keeps running**.
- Fullscreen exits, copy attempts, and tab switches are **flagged on your monitor** (no automatic penalty). You decide whether to act on them.
- Locks open in order, and every wrong guess costs time, so random guessing is a losing strategy.

Student privacy (FERPA-light)

- No student logins, emails, or ID numbers. Only a team name and first name + last initial for each member.
- Member names appear on your monitor and in the CSV only. **The projector board never shows member names.**
- All session data (teams, names, events) is **deleted automatically 7 days** after the session is created. Export the CSV if you want to keep results.

Classroom tips

- Have each team assign roles: a **navigator** (device), a **scribe** (Survival Log), and **trend checkers** (periodic table).
- The wrong-answer effect (bats + "The forest fights back!") is short and classroom-safe, with no flashes or screams. Sound can be muted per device.
- For a grade, collect the Survival Log: the "Because" column shows whether the team understood the trends or guessed.



Answer Key

Clue	Answer	Why
1.1 Largest atomic size (Ne, F, B)	B	Same period (2); atomic radius decreases left to right as nuclear charge grows, so B is largest.
1.2 Largest electronegativity (Ar, O, Li)	O	Electronegativity increases toward the top-right; noble gases like Ar are left out. O beats Li.
1.3 Most shielding (Dy, Sn, Mg)	Dy	Shielding grows with more inner electron shells; Dy (period 6) has the most.
STATION 1 CODE	BODY	B + O + Dy
2.1 Most reactive (Ca, Mg, S)	Ca (20)	Metal reactivity increases down a group; Ca is below Mg. S is a nonmetal and less reactive here.
2.2 Lowest nuclear charge (Sc, Cr, Br)	Sc (21)	Nuclear charge = number of protons; Sc has the fewest.
STATION 2 CODE	2021	20 + 21
3.1 Highest electronegativity (F, O, N)	F (9)	Fluorine is the most electronegative element.
3.2 Largest (Pb, Po, Sb)	Pb (82)	Pb and Po are in period 6 (bigger than Sb in period 5); Pb is farther left, so it is larger than Po.
STATION 3 CODE	982	9 + 82
4.1 Nuclear charge increases (Mg, Al, Ar)	RIGHT	Protons increase across period 3.
4.2 Shielding increases (Mg, Ca, Sr)	DOWN	Each step down group 2 adds an electron shell.
4.3 Size increases (S, Si, Mg)	LEFT	Atomic radius increases right to left across period 3.
4.4 Ionization energy increases (Ba, Ca, Be)	UP	Ionization energy increases going up group 2.
4.5 Electronegativity decreases (Cl, Al, Na)	LEFT	Electronegativity decreases right to left across period 3.
STATION 4 CODE	R D L U L	Right, Down, Left, Up, Left

Clue edits from the original activity

- 3.1 now lists choices (F, O, N); before, it gave no options.
- 4.2, 4.3, and 4.5 now use elements that sit in a **single row or column** (Mg/Ca/Sr, S/Si/Mg, Cl/Al/Na). The originals mixed periods, making the direction ambiguous. All codes are unchanged.
- On Station 4 the elements are listed in path order, with arrows, so "which way" reads as a direction.