**🧩 Activity 2: Alloy Crossword Challenge**

**🎙️ Activity Introduction**

“Use what you have learned about alloys to solve this crossword puzzle. Read each clue carefully and type the correct alloy name in the boxes. Each correct word reveals a fact about the alloy you identified. Complete all words to unlock a final message.”

**👨‍💻 Developer Guide Instructions**

* **Type**: Interactive digital crossword with text input boxes (6–8 vertical/horizontal entries)
* **Display**:
  + Grid-based layout with numbered cells
  + Click on a clue number to highlight the correct entry path
* **Interactivity**:
  + Each correctly typed word triggers a pop-up with an alloy fact
  + Full completion unlocks a final congratulatory message
* **Accessibility**:
  + Tooltips or alt text for learners using screen readers

**🖥️ Learner Instructions (On-Screen)**

1. Read each clue carefully.
2. Click the clue number to highlight its position on the grid.
3. Type the correct alloy name in the highlighted boxes.
4. Continue until all words are completed to reveal the final message.

**💡 Hints (On-Screen)**

* “Think about what metals are combined to make this alloy.”
* “Remember where you have seen this alloy in everyday life.”
* “Some alloys are chosen for strength, others for appearance or corrosion resistance.”

**📎 Activity Content – Crossword Clues and Entries**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Direction** | **No.** | **Clue** | **Answer** | **Icon** |
| Across | 1 | An alloy used in medals | bronze | 🏅 |
| Across | 2 | This alloy resists rust in cutlery | stainless | 🍴 |
| Across | 3 | Used in aircraft | duralumin | ✈️ |
| Down | 4 | Copper + zinc | brass | 🚰 |
| Down | 5 | Alloy of iron + carbon | steel | 🏗️ |
| Down | 6 | Soft metal added to copper to make bronze | tin | 🪙 |

**📖 Alloy Facts Revealed Upon Correct Answer**

* **bronze** → “Bronze is harder than copper alone and is used in sculptures and awards.”
* **stainless** → “Stainless steel is a rust-resistant alloy ideal for cutlery and medical tools.”
* **duralumin** → “Duralumin is a lightweight aluminium alloy used in aircraft and bicycles.”
* **brass** → “Brass, made of copper and zinc, is used in taps and musical instruments.”
* **steel** → “Steel is a strong, flexible alloy used in bridges and buildings.”
* **tin** → “Tin is mixed with copper to make bronze. It adds strength and corrosion resistance.”

**🎙️ Activity Conclusion**

“You have uncovered the core of alloy knowledge! Alloys are all around you — and now, you can name them and explain their purpose.”

**✅ Key Takeaways:**

* **Valued properties:** Durability, conductivity, corrosion resistance, malleability, and ductility.
* **Gold:** Rare, attractive, used in jewellery, medals, and investment.
* **Copper:** Crucial for electrical systems.
* **Steel:** Key material in construction, vehicles, and manufacturing.
* **Alloys** often outperform pure metals, offering longer lifespan and better properties.