**🎯 Activity 2: 🔍 Hotspot Click – “Inside an Alloy”**

**🎙️ Activity Introduction 🎙️ *(Mic Icon)***

"Alloys are not just metal mixtures—they are science-built materials! In this activity, you will explore how atoms are arranged inside pure metals compared to alloys. Click each hotspot to uncover the hidden science behind why alloys are often stronger and more useful than pure metals."

**👨‍💻 Developer Guide Instructions**

* **Type**: Hotspot Exploration – Clickable Diagram
* **Assets Required**:
  + Two high-quality diagrams:
    1. Regular arrangement of atoms in pure metals.
    2. Disrupted atomic arrangement in alloys (different sized atoms).
  + Clearly labelled hotspots:

1. Uniform atoms
2. Distorted arrangement
3. Grain boundaries
4. Impurity atoms

* **Interactive Behaviour**:
  + Clicking a hotspot reveals a narrated pop-up with an informative explanation.
  + Each explanation is linked to a specific physical property or behaviour of metals vs alloys.
  + Visual highlight when hotspot is clicked.
* **Audio**: Optional click and reveal sounds; narration for each revealed section.
* **Interface Tip**: Use a magnifying glass icon for hover cursor.

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

1. Study the diagrams of a pure metal and an alloy.
2. Click on each hotspot to learn about that part of the structure.
3. Read and listen to the explanation carefully.
4. Click all hotspots to complete the activity.

**💡 Hint (On-Screen)**

* Pure metals have atoms of the same size, neatly arranged in layers.
* Alloys contain different-sized atoms, making them stronger.
* Grain boundaries and impurity atoms help stop cracks and corrosion.

**🧪 Activity Content – Hotspots and Explanations**

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| **Hotspot** | **Explanation** |
| **Uniform Atoms in Pure Metal** | "In pure metals, atoms are arranged in a neat, repeating pattern with all atoms the same size. This regular structure allows the layers to slide over each other easily when force is applied, which is why many pure metals are softer and more malleable." |
| **Irregular Atom Sizes in Alloy** | "When atoms of different sizes are present, the regular pattern is disrupted. These uneven sizes make it harder for the layers to slide past one another, increasing the alloy’s strength and making it more resistant to bending or denting." |
| **Grain Boundaries in Alloy** | "Alloys are made up of many small crystals, each with a slightly different arrangement of atoms. The points where these crystals meet are called grain boundaries. These boundaries block the movement of atoms, making the material more resistant to cracks and deformation." |
| **Impurity Atoms Added to Alloy** | "Impurity atoms are added to change the properties of a metal. Because they differ in size and type from the main atoms, they distort the structure, which can increase strength, improve corrosion resistance, or help the alloy withstand heat." |

**🎙️ Activity Conclusion 🎙️ *(Mic Icon)***

"Excellent work! You have just uncovered the atomic-level difference between soft, bendable metals and their stronger, more durable alloy versions. By adding different atoms, we can change how metals behave—stronger, harder, and more useful. That is the real magic of alloys!"