**🎯 Activity 2: 🧠 Scenario-Based Decision Game – Choose the best metal or Alloy**

**🎙️ Activity Introduction**

“Metals and alloys help us build safe bridges, design aircrafts, and wire homes. In this challenge, step into the shoes of an engineer or designer. Read each real-world task, choose the best metal or alloy, and explain your decision using the properties you know!”

**👨‍💻 Developer Guide Instructions**

* **Activity Type**: Scenario-Based Decision Game
* **Scenario Presentation**: Text-based scenarios with visual icons or background images
* **Choices**: 3–4 clickable metal/alloy options per scenario
* **Selection Action**: Learner clicks choice → immediate facilitative feedback appears
* **Reinforcement Feature**: “Why This Works” button reveals property hint after attempt
* **Audio**: Voice-over reading scenario, choices, and responses
* **Visual Assets**:
  + Icons/images for bicycle, sink, wire, bridge, medal
* **Interactivity Notes**:
  + Highlight correct choice with ✅ green glow
  + Incorrect choice with ❌ red glow
  + Use gentle sound cues: “bell” for correct, “soft buzz” for incorrect

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

1. Read the real-world engineering scenario carefully.
2. Click the metal or alloy you think is most suitable for the task.
3. Read the feedback to understand why your choice is correct or incorrect.
4. Use the “Hint” if you need extra guidance before answering.

**💡 Hint (On-Screen)**

Think about the property needed: strength, lightness, corrosion resistance, conductivity, or appearance. Match these to the metals or alloys you know.

**📋 Activity Content – Scenarios, Choices & Feedback**

**📘 Scenario 1: Build a lightweight bicycle frame**

*"You are designing a bicycle frame. It must be strong but very light."*

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| **Choice** | **Feedback** |
| ❌ Iron | “Iron is strong but too heavy for bikes. Look for something lighter.” |
| ❌ Gold | “Gold is heavy and soft—unsuitable for building frames.” |
| ✅ Aluminium | “Aluminium is lightweight and resistant to corrosion—great for bicycle frames.” |
| ✅ Duralumin | “Duralumin is a strong, lightweight alloy—perfect for high-performance bike frames.” |

**📘 Scenario 2: Design a corrosion-resistant kitchen sink**

*"You are choosing a metal for a kitchen sink that will not rust or corrode."*

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| **Choice** | **Feedback** |
| ❌ Steel | “Steel rusts when exposed to water. Think about what prevents rust.” |
| ❌ Copper | “Copper is shiny but corrodes over time and stains easily.” |
| ✅ Stainless Steel | “Stainless steel resists rust and keeps its shine—ideal for kitchens.” |
| ❌ Bronze | “Bronze is durable but less common in wet kitchen environments.” |

**📘 Scenario 3: Make a flexible, conductive wire**

*"You need a material that conducts electricity well and can bend easily."*

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| **Choice** | **Feedback** |
| ❌ Brass | “Brass is used in instruments, not wires. Look for better conductivity.” |
| ❌ Iron | “Iron conducts poorly and is too rigid for wire.” |
| ✅ Copper | “Copper is highly conductive and flexible—perfect for wiring.” |
| ✅ Aluminium | “Aluminium is a good conductor and light—also used in power cables.” |

**📘 Scenario 4: Construct a strong, durable bridge**

*"You are selecting the main structural metal for a large bridge."*

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| **Choice** | **Feedback** |
| ❌ Gold | “Gold is too soft and expensive for structural work.” |
| ✅ Steel | “Steel is strong, durable, and ideal for load-bearing structures like bridges.” |
| ❌ Aluminium | “Aluminium is light but lacks the strength for long-span bridges.” |
| ❌ Bronze | “Bronze is tough but not commonly used in large structural designs.” |

**📘 Scenario 5: Craft a medal for a sports competition**

*"The sports committee wants a decorative and durable metal for medals."*

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| **Choice** | **Feedback** |
| ❌ Aluminium | “Aluminium is light but not traditionally used for awards.” |
| ✅ Brass | “Brass has a golden appearance and is easy to mould into decorative medals.” |
| ❌ Stainless Steel | “Stainless steel is rust-resistant but lacks the classic look of medals.” |
| ✅ Bronze | “Bronze is traditional for medals—it is hard and aesthetically appealing.” |

**🎙️ Activity Conclusion**

“Fantastic reasoning! You applied knowledge of properties like strength, conductivity, and corrosion resistance to make the right material choices for real-world needs. Well done!”