**🎓 Activity 2: 🛡️ Mini-Game – “Stop the Rust!”**

**🎙️ Activity Introduction**

“Rust is trying to take over! Your mission is to protect metal objects by choosing the best rust prevention method for each situation. Each shield you choose could save the metal—or let it decay. Let us block the rust!”

**👨‍💻 Developer Guide Instructions**

* **Type**: Prevention Strategy / Decision Game
* **CBC Competency**: Investigate rust prevention methods and apply them in real-world contexts.
* **Set-Up**:
  + Show 5 illustrated real-life metal items: 🛳️ Ship hull, 🚪 Garden gate, 🔧 Tools, 🚗 Car underside, 🏗️ Building beams.
  + Provide 3 clickable rust prevention options per scenario.
  + Trigger **immediate visual and text-based feedback** upon selection.
* **Game Flow**:
* Display object with short environmental description.
* Learner selects best rust prevention method.
* Feedback and effect displayed (shield appears for correct choice / rust spreads for incorrect).
* **Audio**: Voice-over for scenario, options, and feedback.
* **Tracking**: Count correct first-attempt answers to trigger badges.

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

1. Read each scenario carefully.
2. Think about the environment and metal’s exposure.
3. Click the rust prevention method that works best.
4. See if your shield holds or rust wins.

**💡 Hints (On-Screen)**

* “If water is involved, think about sealing or sacrificing.”
* “Stationary objects need permanent coatings.”
* “Salt water speeds up rust—stronger shields are needed.”

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

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| --- | --- | --- | --- |
| **Scenario & Description** | **Choices** | **Correct Feedback (✅)** | **Incorrect Feedbacks (❌)** |
| **🛳️ Ship Hull in Sea Water** | 🖌️ Paint 🧴 Oil 🧲 Attach Sacrificial Zinc Block ✅ | 🛡️ “Excellent! Sacrificial zinc corrodes first, saving the ship’s hull.” | 🖌️ “Not enough! Paint may wear off quickly in seawater.” 🧴 “Oil would wash off in salty waves—try again.” |
| **🚪 Outdoor Garden Gate** | 🖌️ Paint ✅ 🧴 Oil 🧲 Zinc Block | 🎨 “Great! Paint forms a barrier that blocks moisture and air.” | 🧴 “Oil helps, but rain can wash it away over time.” 🧲 “Zinc blocks are better for water-submerged items.” |
| **🔧 Metal Tools Stored in Shed** | 🧴 Oil ✅ 🖌️ Paint 🧲 Zinc Block | 🧴 “Correct! Oil coats and protects tools in dry storage.” | 🖌️ “Painting tools can be messy and wears off during use.” 🧲 “Zinc is too extreme for simple storage needs.” |
| **🚗 Car Underside** | 🖌️ Paint 🧲 Galvanising (Zinc coating) ✅ 🧴 Oil | 🧲 “Yes! Galvanising protects the underside from water and road salt.” | 🖌️ “Paint chips easily under a moving car—try again.” 🧴 “Oil would wear off quickly from road friction.” |
| **🏗️ Metal Beams in a Building Frame** | 🖌️ Paint ✅ 🧲 Zinc Block 🧴 Oil | 🎨 “Spot on! Paint is the best choice for exposed structural beams.” | 🧲 “These are not submerged in water—zinc is unnecessary.” 🧴 “Oil is not ideal for permanent structures.” |

**🎙️ Activity Conclusion**

“Fantastic! You matched rust prevention strategies to real-life situations. Rust cannot win when you apply science correctly!”