**🎯 Activity 3: 🧪 Fix the Mistake! – “Error Buster”**

**🔧 Type:** Error Spotting & Correction  
**🎯 Target Skill:** Apply atomic number knowledge and shell capacity rules to fix electron arrangement errors

**🎙️ Activity Introduction 🎤**

**Narration:**  
"Atoms must follow strict rules when filling up with electrons. But someone made a mistake in the arrangements! Your job is to spot the error and fix it by dragging the electrons to the correct shells. Are you ready to be the error buster?"

**👨‍💻 Developer Guide Instructions**

* Display each configuration visually with electrons shown in shell rings.
* Use drag-and-drop logic for moving electrons between shells.
* Add snap zones with capacity limits:
  + Shell 1 → Max 2
  + Shell 2 → Max 8
  + Shell 3 → Max 8
* Allow learners to reconfigure electrons and click **“Submit Fix”**.
* After submission, display **specific facilitative feedback** for correct and incorrect answers.
* End screen shows conclusion narration.

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

1. Look at the atom’s current configuration.
2. Count the total electrons shown.
3. Check the element’s atomic number.
4. Drag and drop electrons to the correct shells based on filling rules (2–8–8).
5. Submit your fix to receive feedback.

**💡 Hint Panel (On-Screen)**

**Shell Filling Rules:**

* 1st shell → Max 2 electrons
* 2nd shell → Max 8 electrons
* 3rd shell → Max 8 electrons

**Hints:**

* Count all shown electrons and compare with the correct atomic number.
* Fix overflowed or missing shells.
* Remember: Atomic Number = Total Electrons.

**🧪 Activity Content with Specific Facilitative Feedback**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Case** | **Element** | **Incorrect Arrangement(s)** | **Correct Arrangement** | **Correct Feedback** | **Incorrect Feedbacks** |
| **1** | Helium | 2.1 | 2 | **Correct:** Helium has 2 electrons, all in the first shell. Corrected well. | **If 2.1:** Helium has only 2 electrons. First shell is full; no electrons should go to the second. |
| **2** | Fluorine | 2.6, 3.6 | 2.7 | **Correct:** Fluorine’s atomic number is 9 → 2 in 1st shell, 7 in 2nd. | **If 2.6:** Fluorine has 9 electrons. Only 8 shown here. One is missing from the second shell. **If 3.6:** The second shell should be filled before moving to the third. |
| **3** | Sodium | 2.9, 3.8 | 2.8.1 | **Correct:** Sodium has 11 electrons. You have arranged them correctly. | **If 2.9:** The second shell cannot hold more than 8. Excess electron must go to the third shell. **If 3.8:** First shell is incomplete; always fill shells in sequence. |
| **4** | Neon | 2.6.2, 2.7.1 | 2.8 | **Correct:** Neon’s configuration is stable and full at 10 electrons. Good fix. | **If 2.6.2:** Third shell should not be used before the second is full. Neon has only 10 electrons. **If 2.7.1:** Second shell must be completed to 8 before placing any electrons in the third shell. |
| **5** | Magnesium | 2.10, 3.7.2 | 2.8.2 | **Correct:** Magnesium has 12 electrons. 2 + 8 + 2 = 12. Fixed correctly. | **If 2.10:** Second shell max is 8. Move 2 electrons to the third shell. **If 3.7.2:** First shell must always contain 2 electrons before filling the others. |

**🎙️ Activity Conclusion 🎤**

**Narration:**  
"You have spotted and fixed the atomic errors successfully. This shows that you understand how electrons fill energy levels based on atomic number. Keep practising, and you will become a master of atomic accuracy."