**Data Insights**

**1. Performance & Accuracy Insights**

1. **Overall Accuracy Rate** – % of students who answered all 10 questions correctly.
2. **Most Frequently Missed Question** – The question with the lowest correct answer rate.
3. **Easiest Question** – The question with the highest correct answer rate.
4. **Average Score per Attempt** – Mean score across all attempts.
5. **Perfect Scorers** – Number of students who scored full marks (sum of all question scores).
6. **Zero Scorers** – Students who got all answers wrong.
7. **Partial Correctness** – % of students who got at least one multi-select question partially correct.
8. **Score Distribution** – Histogram of total scores (0-10).
9. **Question Difficulty Mismatch** – Are "HARD" questions actually harder based on accuracy?
10. **Most Polarizing Question** – Question with the most extreme correct/incorrect split.

**2. Question-Specific Insights**

1. **Q1 (Workbook Completion)** – % of students who truthfully admitted finishing the workbook.
2. **Q2 (Global Warming Effects)** – Most commonly missed sub-option (floods, air quality, fires, food scarcity).
3. **Q3 (SDG Innovations)** – Which incorrect option was most frequently selected (fan with lights, etc.).
4. **Q4 (Multipurpose Bags)** – % who correctly identified "Farmers" as beneficiaries.
5. **Q5 (SDG for Drones Planting Trees)** – % who matched "Protect Land, Plants & Animals."
6. **Q6 (Solar School Bags Sustainability)** – Which sustainable feature was most overlooked?
7. **Q7 (Sustainability Definition)** – Common misconceptions (e.g., "Preparing for other planets").
8. **Q8 (SDG Importance)** – % who correctly identified the SDG’s purpose.
9. **Q9 (Innovator Actions)** – % who chose "Understand community problems" vs. other options.
10. **Q10 (Social Innovation)** – Most frequent incorrect statement selected.

**3. Attempt & Behavioral Insights**

1. **Average Attempts per Question** – Do students retry certain questions more?
2. **First-Attempt Accuracy** – % correct on the first try vs. later attempts.
3. **Most Re-attempted Question** – Which question had the most retries?
4. **Do Retries Improve Accuracy?** – Comparison of first vs. last attempt correctness.
5. **Guessing Patterns** – Are wrong answers clustered around certain options?
6. **Time-Based Trends (if available)** – Do later attempts show improvement?
7. **Drop-off Rate** – % of students who didn’t complete all questions.
8. **Most Skipped Question (if applicable)** – Which question was left unanswered most?
9. **Speed vs. Accuracy (if timed)** – Did faster attempts yield better scores?
10. **Final Answer Changes** – Did students switch from correct to incorrect answers?

**4. Comparative & Demographic Insights (if data available)**

1. **Gender Performance Gap** – Did males/females perform differently on certain questions?
2. **Age-Based Trends** – Did younger/older students struggle with specific concepts?
3. **School/Region Comparison** – Which groups performed best on SDG-related questions?
4. **High Scorers’ Behavior** – Did top performers share common answer patterns?
5. **Low Scorers’ Struggles** – Which questions did they consistently get wrong?

**5. Question Design & Learning Insights**

1. **Multi-Select vs. Single-Select Difficulty** – Were multi-select questions harder?
2. **Hint Effectiveness (Q3)** – Did the hint ("2 correct answers") improve accuracy?
3. **Question Wording Impact** – Did complex phrasing reduce accuracy (e.g., Q10)?
4. **Most Misleading Distractor** – Which wrong option fooled the most students?
5. **Learning Curve Evidence** – Did later questions show better accuracy (indicating learning)?

**6. Advanced Statistical Insights**

1. **Point-Biserial Correlation** – Which questions best predicted overall quiz success?
2. **Cronbach’s Alpha** – Internal consistency of the 10 questions.
3. **IRT (Item Response Theory) Analysis** – Estimating question difficulty/discrimination.
4. **K-means Clustering** – Grouping students by answer patterns.
5. **Factor Analysis** – Do questions cluster into themes (e.g., SDG knowledge vs. innovation)?

**7. Actionable Recommendations**

1. **Content Gaps** – Which topics need reinforcement (e.g., sustainability definition)?
2. **Question Revision** – Should misleading options (e.g., Q7’s "other planets") be removed?
3. **Retry Policy Impact** – Does allowing retries improve learning outcomes?
4. **Intervention Targets** – Which student groups need focused support?
5. **Curriculum Alignment** – Do results suggest misalignment with taught material?