**🌪️ Build a Wind Turbine Challenge**

**Group Worksheet (6–8)**

**Team Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
**Team Members:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**✅ Station Progress Tracker**

 **Stations Completed? ✅** **Adult Initials**

|  |  |  |
| --- | --- | --- |
| **Station 1-Base** |  |  |
| **Station 2- Tower** |  |  |
| **Station 3- Nacelle** |  |  |
| **Station 4- Blades** |  |  |
| **Station 5- Rotor** |  |  |
|  **Cards** |  |  |

**Write your group answers below for each station.**

**🏗️ Station 1 – BASE Station: Balance & Stability**

**Question:** Why is a strong foundation critical for real-world wind turbines (think about soil, concrete, and vibration)?
✏️ **Answer (at least 2 sentences):**

**📏 Station 2 – TOWER Station: Scaling with Math**

1. **If your stride is 0.8 meters, how many steps would it take to walk an 80-meter tower?**
✏️ Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ steps
2. **A turbine blade is 40 meters long. At 1/10 scale, how long is the blade?**
✏️ Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ meters

**⚙️ Station 3 – NACELLE Station: Systems at Work**

**Question:** Write a detailed function statement for the nacelle. Be sure to include **generator, gearbox, and control systems.**
✏️ **Answer:**

**💨 Station 4 – BLADES Station: Data in Motion**

1. Record your revolutions in **15 seconds**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Formula: **RPM = (Revolutions ÷ Seconds) × 60**
3. ✏️ **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ RPM**

**Bonus Question:** Why do blades have to slow down in strong winds? *(Think about safety + efficiency.)*✏️ **Answer:**

**🧩 Station 5 – ROTOR Station: Energy in Action**

**Question:** Write 2 sentences explaining the rotor’s role in energy conversion. Use at least **4 vocabulary words** from the word search and underline them.
✏️ **Answer:**

**🏁 Final Check**

☐ We earned all 5 cards
☐ We earned a BONUS card
☐ We’re ready for the Final Destination Build!