# Smart Sustainable House (Renewable Futures)

**Your Mission**: You've been recruited as junior consultants by FutureHaus, a global company designing smart, sustainable homes for the world's toughest environments. To win the contract, your team must prove you understand both the green tech and the human needs behind sustainable living.

## Pre-Visit Activity

| | | |
|---|---|---|
| **Hack the House** | 25 mins | **Scenario:** You're given a blueprint of a "typical Aussie house" — but it's full of sustainability fails: dark roof, west-facing windows, no insulation, minimal shading.<br>**Task:**<br>• In small teams, circle all the "sustainability fails."<br>• Propose **4 major upgrades** that would boost energy efficiency or liveability.<br>• Share your *biggest fail fix* back to the class.<br>**Discussion Prompt:**<br>"Would you actually want to live here? Why or why not?" |
| **Smart Home Showdown** | 20 mins | **Scenario:** Smart homes promise comfort and energy savings, but critics warn about privacy risks.<br>**Task:** Quickfire **Agree / Disagree Debate** using Mentimeter, Kahoot, or voting corners.<br>Sample statements:<br>• Smart homes make life more convenient.<br>• The benefits outweigh the privacy risks.<br>• I trust tech companies with my data.<br>• Smart homes are only for wealthy people.<br>• Smart devices should be banned in bedrooms.<br>**Outcome:** Teams build quick arguments, then reflect on whether convenience is worth the trade-off. |
| **Checkpoint** | 5 mins | **Prompt:** "A truly smart home is one that…"<br>Each student writes or sketches a definition that blends **sustainability + technology + human needs**. |

## Post-Visit Activity

| | | |
|---|---|---|
| **Global Housing Pitch** | 40 mins | **Scenario:** FutureHaus wants prototypes for extreme environments. Your team must design a smart, sustainable home for one city:<br>• Tromsø, Norway — cold + limited sunlight<br>• Alice Springs, NT — extreme heat swings<br>• Suva, Fiji — cyclone risk + humidity<br>• Tokyo, Japan — limited space + urban heat<br>**Task:** Use **Energy3D** to design a house that:<br>• Consumes **<4000 kWh/year**<br>• Costs **< $400,000**<br>• Matches climate + culture needs<br>• Includes solar panels, strategic window/tree placement, and efficient materials<br>**Deliverable Options:**<br>• 90-sec video walkthrough<br>• Digital pitch slide deck<br>• Before-and-after screenshots with short report |
| **One Change, Big Impact** | 20 mins | **Task:** Run a controlled test in **Energy3D**: change **one design variable** only (roof colour, window orientation, shade trees).<br>Measure the impact on:<br>• Annual kWh usage<br>• Energy bills<br>• Comfort levels<br>**Outcome:** Create an infographic or TikTok-style explainer:<br>*"Here's why you should never build a house with ____."* |
| **Redesign my Home** | 20 mins | **Prompt:** As Smart Home Specialists, what would you change in your current home?<br>• Sketch a redesign<br>• Write a 150-word proposal<br>• Build a quick mock-up in Energy3D or Tinkercad<br>**Final Reflection:**<br>"A truly smart home is one that..." |