**Design Brief for Adaptation Automation**

**Grade 5**

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**Background**

After a short time working in the shipping department, you and your team solved a dilemma that saved your boss’s job, and saved the president of your company from certain embarrassment. As reward you have all been promoted to the design and building department, where a brand new challenge awaits you. Your company has begun selling robots that can mimic animals and some of the adaptations that make them well suited to their environments. They have become a big hit here in the United States and the company has plans to sell them all over the world. There is just one small problem; no one in your company knows much about animals, or their environments in different parts of the world.

**Design Challenge**

***The RoboStop*** once again needs your help, this time to determine what types of adaptation a robot would need to be sold and survive in a given environment. Your Challenge is to learn all about an environment, its animals and their adaptations that make them well suited to live in a particular region of the world. With this knowledge, you and your team will design and build a robot that would have the necessary adaptations to thrive in that environment.

**Criteria & Constraints**

* Your robot must have a minimum of at least 3 adaptations specific to the environment in which it will be sold.
* At least one of the adaptations must be an adaptation related to motion of some type.
* At least one of the adaptations must be an adaptation utilizing one or more sensors on the robot.
* Each adaptation must clearly relate to the environment in which the robot will be used.
* Your team must also build a model environment similar to the one in which the robot will be used. This model environment must be used in your demonstration for your proposal.

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| **Materials** | **Tools** |
| * LEGO Robotics Kit * Project folder * Teacher approved materials for building model environment | * Paper and Pencil * Digital Camera * Tools to build |

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| Stage 1 | Unit Standards: |
| **Science**  **5.3.A.1** Explain the idea that in any particular [environment](javascript:openPopupWH('/share/vsc/glossary/science/environment.html',200,200)), some kinds of plants and animals survive well, some less well, and some cannot survive at all.  **Math**  4MBT4 (add and subtract)  4MD6 (measuring angles)  5MBT5 (multiply)  5MBT6 (divide)  5MBT7 (costs)  5NF4B (area, perimeter, fractional units)  5NF6  5MD1-5 (volume)  **ELA**  **Reading**  RI.5.1 – RI.5.10  **Writing**  W.5.2  W.5.7  W.5.9 |