****



**Technology Exploration-I**

Module 6:

Project



****

PREPARED BY

**Academic Services**

August 2011

© Applied Technology High Schools , 2011

Module 6: Project

**Module Objectives**

In this project-based module, students will be able to:

* Explore how simple machines could be used to build simple systems.
* Explain the purpose of electric cars.
* Design and assemble a walker using simple machines and other components and test its functioning.
* Present the project through a PowerPoint presentation.

**Module Content:**

|  |  |  |
| --- | --- | --- |
|  | **Topic** | **Page No.** |
| 6.1 | Walker Assembly | 3 |
| 6.2 | Material List | 4 |
| 6.3 | Activities | 5 |

|  |
| --- |
| **6.1** **Walker Assembly**   |
| **Construct**Build the Walker (all of book 13A and book 13B up to page 13 step 18)* Make sure the power lead is held clear of all moving parts
* Place it on a smooth surface and start the motor by pushing the battery switch forward
* The legs should move freely

Figure 6.1: The Walker Robot |
|  |  |
|  |

|  |
| --- |
| **6.2 Material List**  |
| 1. Lego MINDSTORMS Simple and Motorized Mechanisms Base Set.
2. Large thin book with a hard cover – big book or ring binder.
3. Ruler.
4. Stopwatch or timer.
5. Up to 1 m of floor space.
6. Book 13A and Book 13B.

http://www.legoeducation.us/_static/webupload/730/29_2068_3.jpgFigure 6.2: Simple and Motorized Mechanisms Base Set |

|  |
| --- |
| **6.3 Activities****Task1: How fast can the Walker walk?**First predict how long it will take the Walker to walk 50 cm using leg setting A. Then test your prediction. Next, follow the same procedure for leg settings B and C.Fill the table below with your predictions and measurements.Figure 6.3: Test the speed. |

|  |
| --- |
| **Task 2: Climbing over Hills*** Make a low hill from a big book or ring binder
* Place the Walker as shown in the illustration
* First predict which leg settings A, B or C is fastest for climbing over hills? Then test which in fact is the fastest hill climber.

Figure 6.4: Climb the hill. |