**Appendix A: *Categorizing the motions* activity**

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| --- | --- | --- | --- |
| System | Type of Motion | Example 1 | Example 2 |
| Chain and sprocket |  |  |  |
| Belt and pulley |  |  |  |
| Screw Gear Type I |  |  |  |
| Screw Gear  Type II |  |  |  |
| Friction Gear |  |  |  |
| Cam and follower |  |  |  |
| Worm and worm Gear |  |  |  |
| Slider-crank |  |  |  |
| Rack and pinion |  |  |  |
| Gear Train |  |  |  |

**Appendix A: Answer key for the *Categorizing the motions* activity**

|  |  |  |  |
| --- | --- | --- | --- |
| **System** | Type of Motion: Is it transmission or  transformation | **Examples 1**  **(from textbook or other reference)** | **Example 2**  **(from students)** |
| Chain and sprockets | Transmission | Bicycle | Chain saw |
| Belt and pulley | Transmission | Clothesline | Sails on sailboat |
| Screw Gear Type I | Transformation | Car Jack | Lip Gloss, Glue Stick |
| Screw Gear  Type II | Transformation | Pipe Wrench |  |
| Friction Gear | Transmission | Printing Press | Baseball pitching machine |
| Cam and Follower | Transformation | Sewing Machine needle | Engine pistons |
| Worm and Worm Gear | Transmission | Chute of Snow Blower | Snow Blower,  Guitar tuner |
| Slider-Crank | Transformation | Combustion engine/sparkplugs | Steam Locomotives |
| Rack and Pinion | Transformation | Corkscrew | Steering Wheel column |
| Gear Train | Transmission | Hand drill | Old clocks, hand held egg beaters |