Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

****

**Lesson 1: Mix and Match**

Can you determine which motor is the best for each type of hull?

**Doing the Science**

1. Select the Simulation tab to open the Boat Builder simulation.

2. Select the round hull, 25 HP motor, antifouling paint, and rudder.

3. Click the “Test” button.

4. Select the “Calm” surface condition and “Light” cargo load.

5. Click “Begin Test.”

6. Record your scores in Table 1 below.

7. Repeat steps 2–6 with the 50 and 120 horsepower motors. Use the trim tabs instead of the rudder with these engines.

8. Repeat steps 2–7 with the shallow vee and flat hulls, recording your results in Tables 2 and 3.

**Table 1 – Round Hull**

|  |  |  |  |
| --- | --- | --- | --- |
| **Motor** | **Speed** | **Maneuverability** | **Efficiency** |
| 25 HP |  |  |  |
| 50 HP |  |  |  |
| 120 HP |  |  |  |

**Table 2 – Shallow Vee Hull**

|  |  |  |  |
| --- | --- | --- | --- |
| **Motor** | **Speed** | **Maneuverability** | **Efficiency** |
| 25 HP |  |  |  |
| 50 HP |  |  |  |
| 120 HP |  |  |  |

**Table 3 – Flat Hull**

|  |  |  |  |
| --- | --- | --- | --- |
| **Motor** | **Speed** | **Maneuverability** | **Efficiency** |
| 25 HP |  |  |  |
| 50 HP |  |  |  |
| 120 HP |  |  |  |

**Do You Understand?**

1. Which motor is the best for each hull?