

# Horsepower vs. Weight Graphing Activity

As you tour the plane hangars, read the Specification section of the information panels to find the **Horsepower** and **Empty Weight** of each aircraft. Record this information in the chart and graph it by placing a dot at the intersection of the HP and weight.

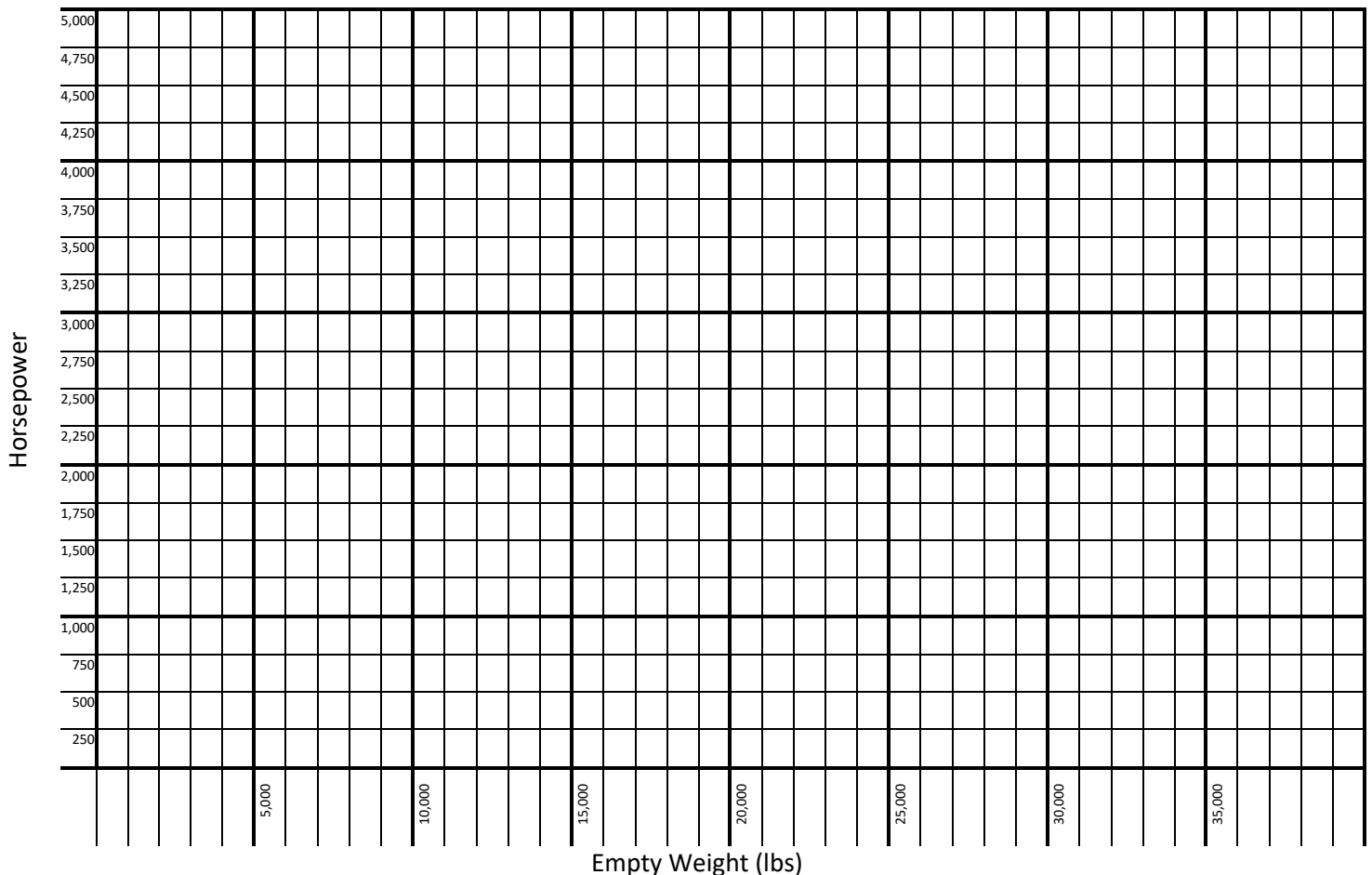
**Horsepower** is the amount of force an engine creates.

**Weight** is the force of attraction to the Earth.



Plane	HP	Weight	Plane	HP	Weight
Piper J-3 Cub			SBD Dauntless		
Anderson-Greenwood AG-14			B25 Mitchell	X 2 =	
Beechcraft Baron	X 2 =		TBM-3E Avenger		
Stearman PT-17 Kaydet			DC-3A	X 2 =	
SNJ T-6 Texan			F4U Corsair		

Horsepower and Weight of Airplanes



# Horsepower vs. Weight Graphing Questions

After recording and graphing your horsepower and weight data, answer these questions.

Horsepower is the force an engine creates to push the plane forward. Larger engines create more horsepower and are needed for heavier or faster planes.

1. Do the data points fall in a pattern, or are they random? \_\_\_\_\_

2. What shape do the data points form? \_\_\_\_\_

3. What does this tell you about the relationship between horsepower (force) and weight of airplanes?  
\_\_\_\_\_

4. Find the point for the DC-3. Does it fit into the pattern? \_\_\_\_\_

5. Go look at the DC-3 (large silver plane) Do you think the difference in the DC-3 that shows on the graph is an  advantage, or a  disadvantage?

a. The data graph shows that a DC-3 has ( more /  less) horsepower than a typical plane with the same weight.

b. If the DC-3 was a typical plane, its horsepower would be around \_\_\_\_\_.

c. It has ( more /  less) horsepower because the engines are ( smaller /  larger), so it uses ( more /  less) fuel, and this is an ( advantage /  disadvantage).

d. What words would you use to describe the DC-3? \_\_\_\_\_

6. Find the points for the A-1D Skyraider and the B-17 Flying Fortress. These planes did the same job and could carry the same bomb loads, but the Skyraider was designed about 10 years after the B-17 was used in World War II. What does the data graph tell you about technology in the 10 year difference?

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7. Why is it helpful to show information in charts or graphs?

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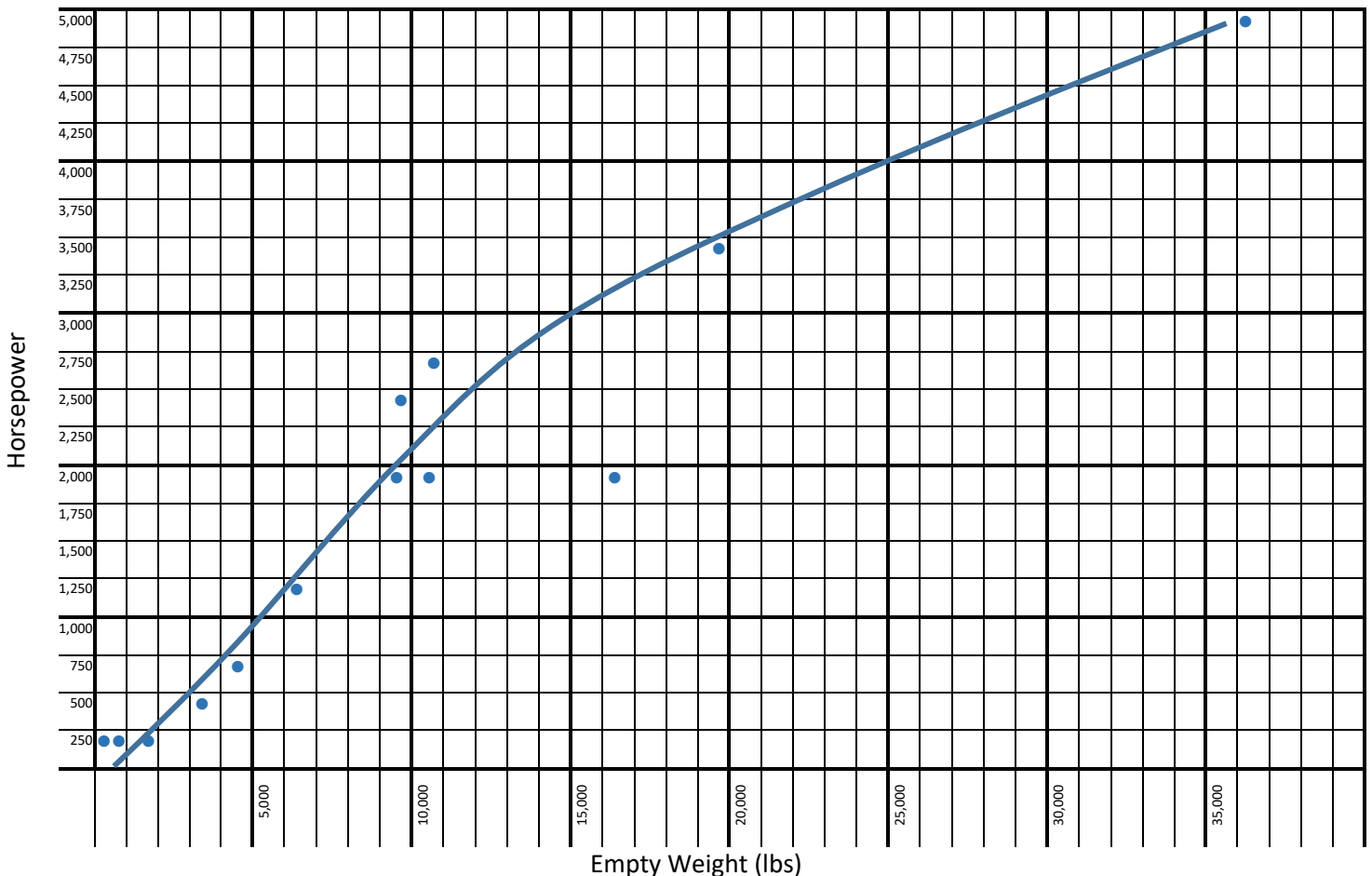
**Horsepower** is the amount of force an engine creates.

**Weight** is the force of attraction to the Earth.



Plane	HP	Weight	Plane	HP	Weight
Piper J-3 Cub	65	640	SBD Dauntless	1,200	6,535
Anderson-Greenwood AG-14	90	850	B25 Mitchell	1700 x 2 = 3400	19,480
Beechcraft Baron	285 X 2 = 570	3,085	TBM-3E Avenger	1,900	10,545
Stearman PT-17 Kaydet	220	1,936	DC-3A	1000 X 2 = 2000	16,865
SNJ Texan	600	4,185	F4U Corsair	2,300	9,803

Horsepower and Weight of Airplanes



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After recording and graphing your horsepower and weight data, answer these questions.

Horsepower is the force an engine creates to push the plane forward. Larger engines create more horsepower and are needed for heavier or faster planes.

1. Do the data points fall in a pattern, or are they random? The data points form a pattern

2. What shape do the data points form? They form a curved line

3. What does this tell you about the relationship between horsepower (force) and weight of airplanes?

As weight increases, horsepower also increase.

4. Find the point for the DC-3. Does it fit into the pattern? No.

5. Go look at the DC-3 (large silver plane) Do you think the difference in the DC-3 shows an  advantage, or a  disadvantage?

a. The data graph shows that a DC-3 has ( more /  less) horsepower than a typical plane with the same weight.

b. If the DC-3 was a typical plane, its horsepower would be around 3,200.

c. It has ( more /  less) horsepower because the engines are ( smaller /  larger), so it uses ( more /  less) fuel, and this is an ( advantage /  disadvantage).

d. What words would you use to describe the DC-3? Efficient, better, advantageous, etc.

6. Find the points for the A-1D Skyraider and the B-17 Flying Fortress. These planes did the same job and could carry the same bomb loads, but the Skyraider was designed about 10 years after the B-17 was used in World War II. What does the data graph tell you about technology in the 10 year difference?

In the 10 years planes were developed to have more horsepower with less weight

7. Why is it helpful to show information in charts or graphs?

It is easier to compare information when it is shown in a visual way instead of just text. You can see which things are the same and what is different.