

# How To Hit The Target Graphing & Launching

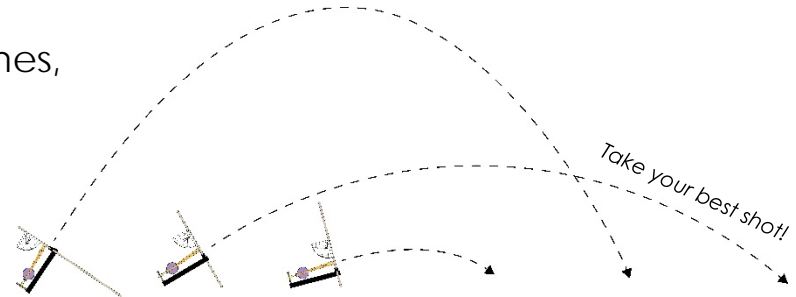
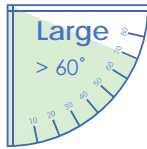
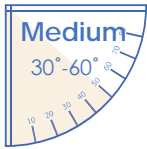
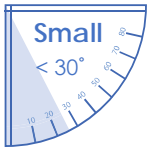


## How To Use A Graph To Hit A Target

Adjusting the launcher angle changes your **projectile's (ball) trajectory**. ↪ How high & how far it goes.

## Launch: Gather Your Data

**Adjust** your launcher's **angle** size three times, taking three shots for each angle.



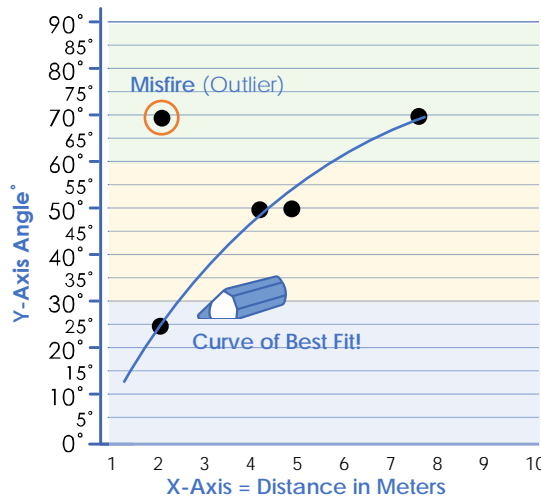
**Graph** the distance each shot landed.

## Graph: Line of Best Fit

**Draw a curve or line of best fit** that follows (fits) your data's path.

Sample Data		
25°	2 m	2 m
50°	4 m	5 m
70°	8 m	2 m

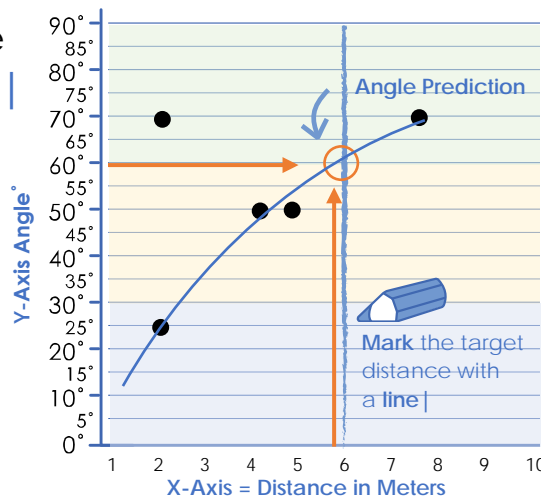
Some shots misfire. These **outliers** are too far from the line of best fit to include.



## Predict: Hitting a Target

Using the graph, **predict** which angle will hit a **target distance**. Draw a **line** from the target distance up until it crosses the curve of best fit – your **angle prediction**.

**Launch** with the predicted angle. Repeat with more predictions – **refine** the line/curve of best fit!



This angle prediction **should** hit the target distance. If it doesn't land after three shots, **launch and graph the line of best fit again**.

↙ **Remember!** Each time you re-design your launcher, make another graph. **New designs need to test new data.**