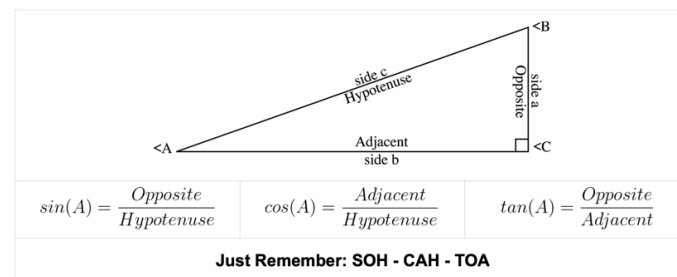## After The Experiment 实验后

You will now need to calculate the actual **'distance'** flown and the speed of your plane. To do this you will need to use some math to calculate the actual distance flown. Using the values for **'displacement'** (e.g., the distance traveled towards the target), and **'deviation'** (e.g., the distance the plane went off course) you can calculate the total **'distance'** flown. Then using the value for **'distance'** and **'time'**, you can calculate the **'speed'** of your mini jet.
现在需要运用一些数学来计算飞机的实际飞行距离和速度。使用 "位移" （例如，飞向目标的距离）和 "偏差" （例如飞机偏离航线的距离）的值，可以计算飞行的总距离。然后用这个值可以计算出飞机的速度。

To calculate the actual **'distance'** flown, you can use **'Pythagoreans theorem"** (i.e., $a^2 + b^2 = c^2$) where **'a'** is equal to the **'displacement'**, **'b'** is equal to the **'deviation'**, and **'c'** is equal to the total **'distance'** flown. Or you can use trigonometry where side **'b'** is represents **'displacement'**, and **'side a'** is represents the **'deviation'**. You can then use these values to calculate the measurement of **'angle A'** and then solve for **'side c'** which is the actual **'distance'** flown by your plane. Use the refence below to help.
要计算实际飞行的 "距离" ，可以使用 "勾股定理" （即，$a^2 + b^2 = c^2$），其中 "a" 等于 "位移" ， "b" 等于 "偏差" ， "c" 等于飞行的总 "距离" 。或者可以使用三角法，其中边 "b" 是 "位移" ，边 "a" 是 "偏差" ，然后，用这些值来计算 "角度 A" 的值，再求解 "侧面 c" ，即飞机飞行的实际 "距离" 。可参考下面的资料。

Trigonometry Ratios (Reference) 三角比率（参考）

$$sin(A) = \frac{Opposite}{Hypotenuse} \quad cos(A) = \frac{Adjacent}{Hypotenuse} \quad tan(A) = \frac{Opposite}{Adjacent}$$

Just Remember: SOH - CAH - TOA

Calculations 计算

	Displacement (m) 位移（m）	Deviation (m) 偏差（m）	Distance (m) 距离（m）	Speed (m/s) 速度（m/s）
Minimum 最小值				
Maximum 最大值				
Average 平均值				

Overview 概述

Only one report needs to be submitted per group; however, it is recommended that you use copies of the report to take rough notes during your experiment and then neatly consolidate all your data into a new report booklet to submit to the teacher.
每组只需提交一份报告；但是，建议在试飞的时候，用个人的报告纸进行粗略记录，然后将所有数据整理到一个新的报告册里并提交。

Please indicate all the group members that are in your group for this experiment.
请列出所有小组成员。

_____   _____   _____
Member A 成员 A   **Member B 成员 B**   **Member C 成员 C**

Please indicate which group member completed each of the following tasks during your experiment (please note that one person may be responsible for more than one role).
请说明在实验期间完成以下每项任务的小组成员（请注意：一个人可能担任多个角色）。

'Qualitative Observations' recorded by: _____
  "定性观察" 记录人:

'Quantitative Observations' recorded by: _____
  "定量观察" 记录人：

- **Who measured the distance for each flight?**   _____
  谁测量每次飞行的距离？

- **Who operated the stopwatch?**   _____
  谁操作秒表？

Tester (i.e., who threw the plane for each test flight):   _____
测试人（即每次试飞投掷飞机的人）

Special Notes 特别说明

1) **'Qualitative Observations'** would include visual observations about each test flight.
   "定性观察" 将包括每次试飞的视觉观察。

2) The **'Tester'** should always remain the same throughout the entire experiment and should always use the same method and strength to throw the plane each time.
   在整个实验过程中， "测试人" 需始终保持不变，每次都应该使用相同的方法投掷飞机。
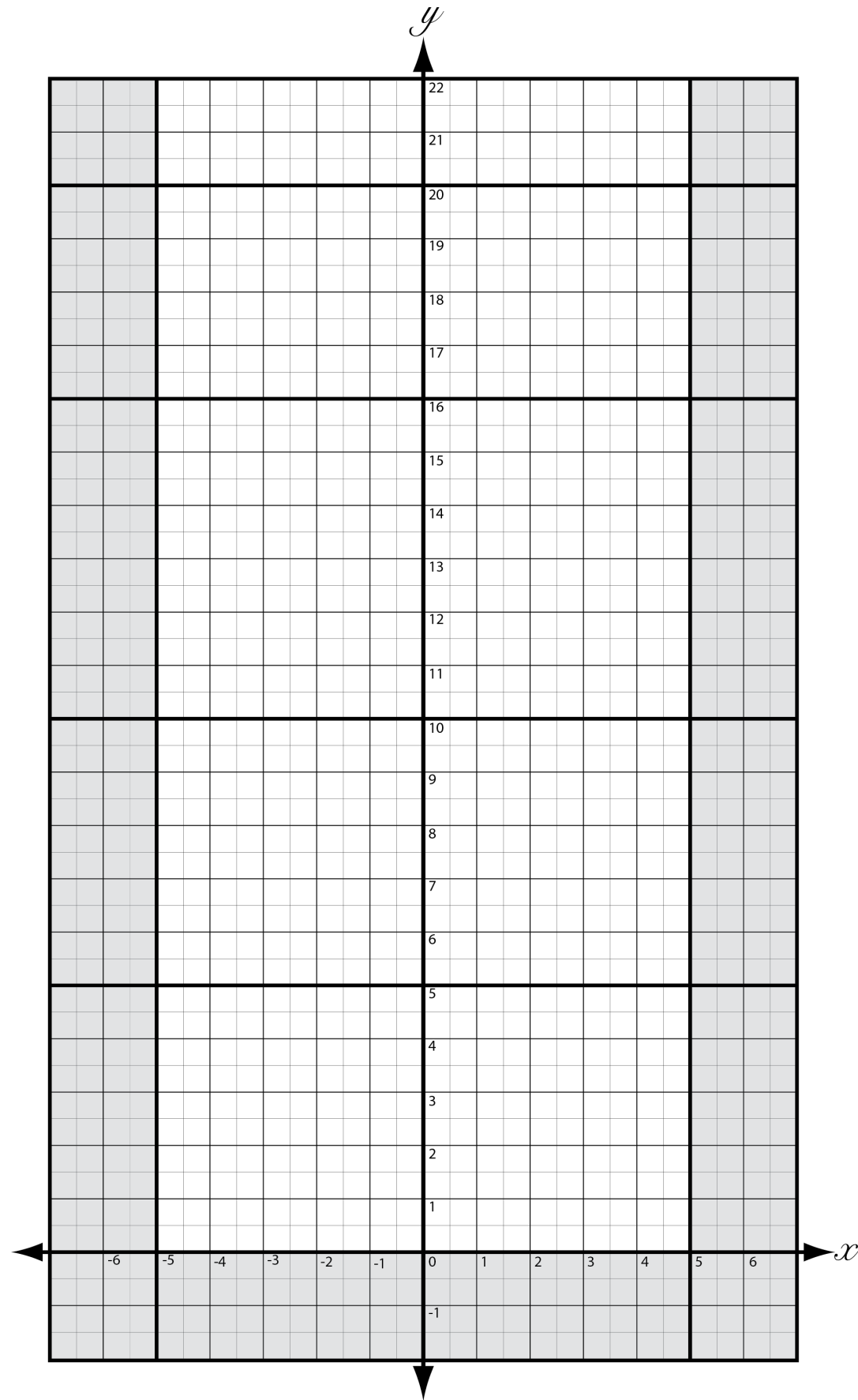
During The Experiment 实验中

Start at the **'origin'** (position 0,0) and throw your plane in a straight line. Start by recording how long your plane was in motion (from the time it left your hands to it when stopped moving). Then record the position of each test flight on the data on the **'Cartesian plane'** (provided on page 2) followed by the numerical values for the **'X-axis'**, and **'Y-axis'** in the chart below. Then calculate the **'minimum'**, **'maximum'**, and **'average'** values.

从 "原点" （位置 0,0）开始直线投掷飞机，并记录飞机运动的时间（从它离手到停止运动的那一刻）。然后将每次试飞的位置记录在 "笛卡尔平面" （第 2 页提供）上的数据上，即下面数据图中 "X 轴" 和 "Y 轴" 的数值。完成后，计算 "最小值" 、 "最大值" 和 "平均值" 。

Quantitative Data 定量数据

	Time (s) 时间（s）	Displacement Y-axis (m) 位移 y 轴（m）	Deviation X-axis (m) x 轴偏差（m）
Test Flight #1 试飞#1			
Test Flight #2 试飞#2			
Test Flight #3 试飞#3			
Test Flight #4 试飞#4			
Test Flight #5 试飞#5			
Minimum 最小值			
Maximum 最大值			
Average 平均值			

Qualitative Data 定性数据

Record visuals observations for each test flight. Did the plane fly in a straight line, did it crash into something while it was in the air, did it break mid-flight, etc.
记录每次试飞的视觉观察结果。飞机是否直线飞行，是否在空中撞到什么东西，是否在飞行途中断裂等等。

1. _____
2. _____
3. _____
4. _____
5. _____