



National  
Aeronautics and  
Space  
Administration

## **Bottle Rocket Project Journal Pack**

Your mission is to design, construct, advertise and fly your bottle rocket. You have a budget of £1 million pounds. Use your money, time, knowledge, and creativity wisely.

It is suggested that this activity is completed as a 'team'. You can do this remotely or, if you prefer, complete it on your own and take on all of the roles yourself!

## **STEPS for Completing the Project.**

### **1 Task 1 A & Task 1 B:**

- 1) Understand project requirements and expectations.
- 2) Complete certificate.
- 3) On rocket checklist, fill in names.
- 4) Complete budget projection sheet.

### **2 Task 2A, Task 2B, and Task 2C**

#### **This can be done alongside any of the other tasks**

- 1) Start rocket construction. Checks have to be written to purchase items. Someone needs to keep up with the balance sheet. Nose cone, fin construction, and bottle construction can take place at the same time. You should be almost finished with your rocket by the end of the second session.
- 2) Complete measurement sheet in your journal located in your journal packet.
- 3) Make scale drawing of rocket.

### **3 Launch:**

- 1) Complete the pre-launch analysis sheet.
- 2) Fill out as much of the flight day log as possible before launch
- 3) Launch rocket.
- 4) Finish completing flight day log sheet.
- 5) Discuss rocket performance.
- 6) Complete flight day log sheet.
- 7) Turn in rocket journal packet.

# Task 1 A

## Certificate of Assumed Name

All information on this form is public information.  
Please type or print legibly in Black ink.

1. Team Name:

\_\_\_\_\_

2. Company Employees:

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

5 \_\_\_\_\_

Today's Date \_\_\_\_\_

## **Job Descriptions**

You need to have 4 roles to build your rocket.

**Team Manager** – in overall control of the team.

This person needs to be able to:

- make a decisions
- take control of any of the activities,
- work well with everyone,

**Financial Controller** – in charge of the money

This person needs to be able to:

- Manage money,
- Write checks,
- Balance the books,
- Communicate successfully with all of the team

**Designer** – This person need to be able to:

- Draw to scale,
- Take measurements that are accurate,
- Convert the measurements as required,
- Design a team badge,

**Rocket Builder** – This person needs to be able to:

- Follow instructions for the manager, financial controller and designer,
- Conserve resources (not get things unless you need them)
- Cut and measure to scale,

## Materials and Price List

The following is your materials and price list from supply companies. Your team has a budget of **£1,000,000**. Use money wisely and **keep accurate records of all expenditures**.

Make sure your NASA consultant (teacher) has reviewed with you the items on the list. (You will not be charged a fee for asking about these items.)

**A project delay penalty fee could be given to a group by the NASA consultant for not working well as a team.**

If your money runs out, you will operate in the “red” and this will count against your team. Use your time and money wisely, and work together as a team! Good luck!

<b>Supplier</b>	<b>Item</b>	<b>Market Price</b>
Bottle Engine Corporation	large bottle (about 1.5 L)	200,000
	small bottle (about 0.5 L)	150,000
Portsmouth Paper Corporation	Hard Cardboard	65,000
	Thin Cardboard	40,000
	Plain Paper - 1 sheet	20,000
International Tape Corp	Selo Tape- 12 inches	60,000
Glue Company	Glue Sticks - 5 minute session	50,000
Strings, Inc.	60 cm	10,000
Common Earth Corporation	White tack (glob)	10,000
Paints Corporation	Use of Markers- per session	50,000
Gas to Go (aqua rocket fuel)	¼ litre	5,000
NASA Launch Port	Launch	100,000
NASA Consultation	1 Question	3,000

### **WARNING**

**You will be fined by your teacher if you are caught using anything of your own except a black/blue pen and a pencil**

## Task 1 B

# Budget Projection Sheet

Make sure you record below all of your predicted costs for the rockets. You need to include all items you think you will wish to purchase. You can only use supplies made available.

Company Name: \_\_\_\_\_

Item	Number	Cost	Total Cost

Find the projected total cost by adding everything in the “total cost” column.  
Do not change this figure once it is written!

**PROJECTED TOTAL COST** £ \_\_\_\_\_

Task 2 A

# Spending Sheet

**You need to complete this sheet with each item you buy. Try to be careful not to over spend you £1,000,000 budget. Should you buy items you do not need, you may sell them to another team.**

Team Name: \_\_\_\_\_

Check number	Name of Item	Cost	New Balance= Total budget - Cost

After your company has bought all supplies, determine how much your company actually spent on the project. To do this, either add everything in the “amount” column or subtract your last total in the “balance” column from £1,000,000.

**TOTAL AMOUNT SPENT** £ \_\_\_\_\_

BOTTLE ROCKETS

<b><i>M oney</i></b> <b><i>A nd</i></b> <b><i>R ocket</i></b> <b><i>S pending</i></b> <b><i>Ltd</i></b> <b><i>Bank to</i></b> <b><i>the stars</i></b>	Team Name: _____	Check No : 04
	Pay: _____	Date _____
	_____	£
	_____	
	For item _____	Signed _____

<b><i>M oney</i></b> <b><i>A nd</i></b> <b><i>R ocket</i></b> <b><i>S pending</i></b> <b><i>Ltd</i></b> <b><i>Bank to</i></b> <b><i>the stars</i></b>	Team Name: _____	Check No : 03
	Pay: _____	Date _____
	_____	£
	_____	
	For item _____	Signed _____

<b><i>M oney</i></b> <b><i>A nd</i></b> <b><i>R ocket</i></b> <b><i>S pending</i></b> <b><i>Ltd</i></b> <b><i>Bank to</i></b> <b><i>the stars</i></b>	Team Name: _____	Check No : 02
	Pay: _____	Date _____
	_____	£
	_____	
	For item _____	Signed _____

<b><i>M oney</i></b> <b><i>A nd</i></b> <b><i>R ocket</i></b> <b><i>S pending</i></b> <b><i>Ltd</i></b> <b><i>Bank to</i></b> <b><i>the stars</i></b>	Team Name: _____	Check No : 01
	Pay: _____	Date _____
	_____	£
	_____	
	For item _____	Signed _____



# Task 3A

## Rocket Measurements Journal

Team Name: \_\_\_\_\_

Use **metric** measurements to measure and record the data in the blanks below.

Be sure to accurately measure all objects that are constant (such as the bottles) and those you will control (like the size and design of fins).

You may want to include other items you have put on your rocket, like your team badge designs.

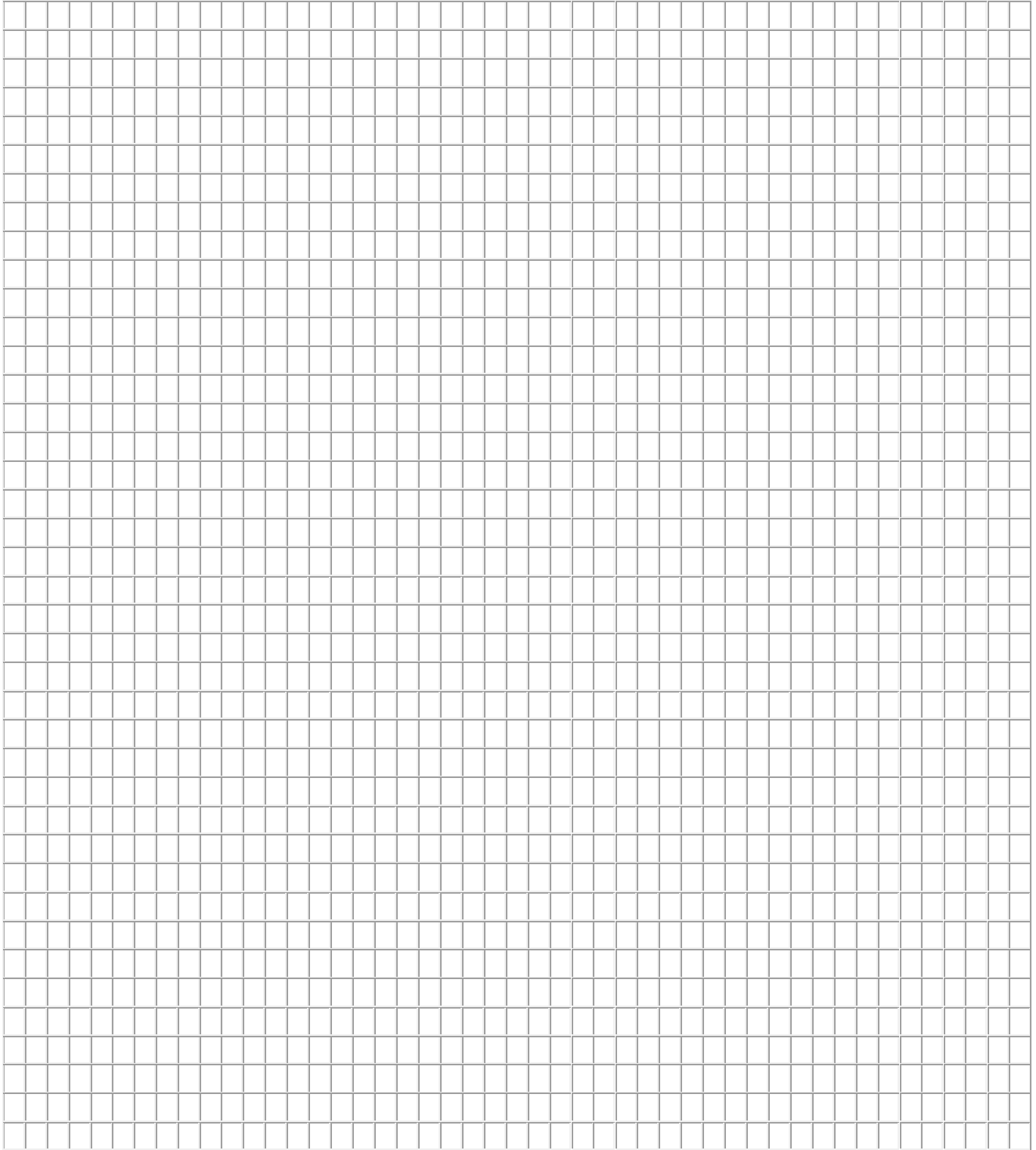
You will need to come up with a clever way to measure circumference.

<b>Object</b>	<b>Length</b>	<b>Width</b>	<b>Diameter</b>	<b>Circumference</b>
Bottle				
Nose cone				
Fins				
Bottle rocket				
Weight of rocket				

# Task 3B

## Scale Drawing

**1 square = 2 cm**



# Launch Day

## Flight Day Log

Date.....

Time.....

Company Name.....

Weather.....

Wind Direction.....

Wind Speed.....

Temperature.....

Launch Location.....

Fuel .....ml .....litres

Distance the rocket reached.....metres

Time in the air.....

Success of rocket.....

.....

.....

Suggestions for improvements to rocket.....

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Budget spent.....

Money saved on the project

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