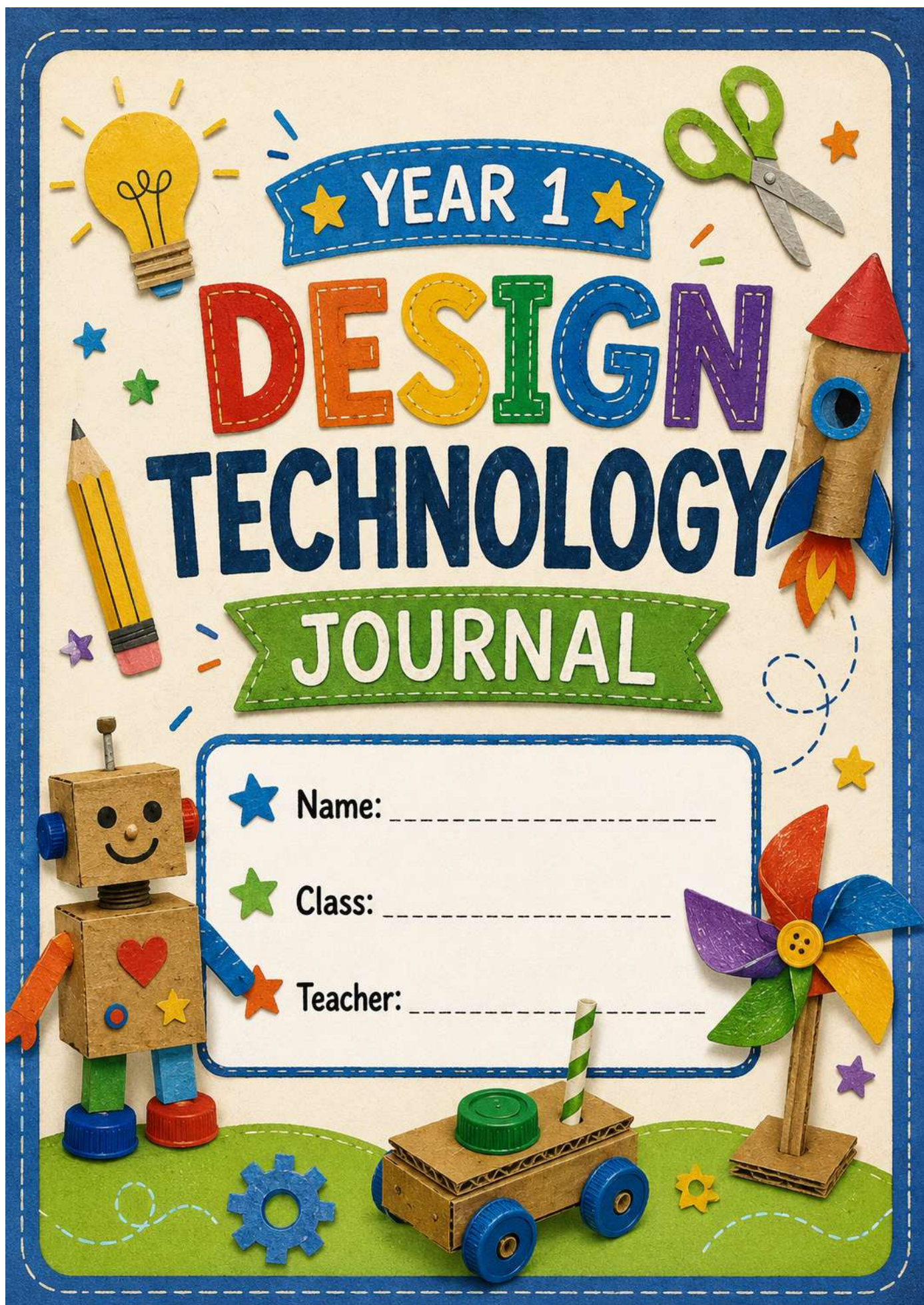




Lesson 1

Junior Toy Designer

Research Department



Your Mission

Investigate a spinning toy. Look carefully at who uses it, what it is designed to do, how it spins and what makes it fun.

1 Investigate a Spinning Toy



My spinning toy is a:



Who is the user?

Who would enjoy playing with this toy?



What is its purpose?

What is the toy designed to do?



How does it spin?

Circle one:

TWIST	FLICK
PULL	BLOW
PUSH	WIND
OTHER	

2 Look at the Features



Tick the features you notice.

- ☐ Bright colours 
- ☐ Interesting patterns 
- ☐ Easy to use 
- ☐ Spins quickly 
- ☐ Spins for a long time 
- ☐ Makes an interesting movement 
- ☐ Something else:

3 My Favourite Feature



My favourite feature is:

Explain how this feature makes the toy fun to play with.



4 Draw What You Observe



Draw the spinning toy. Look carefully at its shape and features.

Key Vocabulary



user



purpose



feature



spin



movement

Lesson 2

The Great Spin Test

JUNIOR TOY DESIGNER ENGINEERING DEPARTMENT



YOUR ENGINEERING MISSION

Test different spinning toys to investigate how different forces make them move. Compare the toys and explain what you discover.

1

HOW DOES IT START SPINNING?

Test different toys. Record how you make each one spin.

	Spinning Toy	How do you make it spin?
	_____	TWIST • FLICK • BLOW • PULL • WIND • PUSH
	_____	TWIST • FLICK • BLOW • PULL • WIND • PUSH
	_____	TWIST • FLICK • BLOW • PULL • WIND • PUSH

2

THE GREAT SPIN TEST

Choose two toys to compare.



Test Your Prediction

	Toy 1	Toy 2
Toy	_____	_____
How did you make it spin?	_____	_____
How long did it spin?	_____ seconds	_____ seconds

My Prediction

I think _____

will spin the longest.



WHAT DID YOU DISCOVER?

Which toy spun the longest?



3

WHAT DID YOU LEARN ABOUT FORCES?

A force is a push or pull that can make something move or change its movement.
Different forces can make toys spin in different ways.

One toy spun when I:



The forces made the toys:

Another toy spun when I:



KEY VOCABULARY



force



movement



spin



push



pull

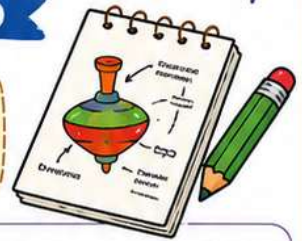
LESSON 3

THE SECRET DESIGN STUDIO

JUNIOR TOY DESIGNER — DESIGN STUDIO

★ YOUR DESIGN MISSION

Design your own spinning toy. Think about who will use it, what it needs to do, how it will spin and what will make it fun.



1 WHO IS YOUR USER?

My spinning toy is for:

- ☐ A younger child ☐ A child my age
☐ A friend ☐ A family member

My user is:



WHAT DOES YOUR USER NEED OR WANT?

My user needs or wants a toy that:



2 PLAN YOUR TOY

Toy name: _____

What is the purpose of your toy?

What materials will you use?



3 HOW WILL YOUR TOY SPIN?

Circle one:

TWIST FLICK BLOW PULL WIND PUSH

The user will make my toy spin by:

The force will make my toy:



4 MAKE IT FUN FOR YOUR USER

Think about colour, pattern, shape, speed or movement.

One feature I will include is: _____

This will make my toy fun for my user because:



5 MY ANNOTATED DESIGN

Draw your spinning toy. Use arrows and labels to show:

materials • **important parts** • **how it spins** • **fun features**



EXPLAIN YOUR DESIGN DECISIONS

I chose these materials because:

I chose this way of making my toy spin because:

DESIGN VOCABULARY



user

design

force

feature

annotated



LESSON 4

PROTOTYPE TROUBLE!

JUNIOR TOY DESIGNER – PROTOTYPE WORKSHOP



YOUR PROTOTYPE MISSION

Use your design to build and test your first prototype. A prototype helps designers find out what works and what needs to improve.



BUILD YOUR PROTOTYPE

Use your design as you build.

Tick when complete:

- ☐ I followed my design.
- ☐ I used tools and materials safely.
- ☐ I worked carefully.



TEST YOUR PROTOTYPE

Test your prototype carefully.

Prototype Test	Yes	Not Yet
Does it spin?	☐	☐
Does it spin without too much wobble?	☐	☐
Does it spin for a long time?	☐	☐
Is it easy for the user to use?	☐	☐
Is it fun to play with?	☐	☐



WHAT WORKED WELL?

One thing that worked well was:



WHAT NEEDS IMPROVING?

One part that needs improving is: _____

Why does it need improving?



MY IMPROVEMENT IDEA

I think I could make it better by:



DESIGN VOCABULARY



prototype



test



user



evaluate



improve



LESSON 5

THE GREAT TOY TESTING LAB

JUNIOR TOY DESIGNER – TESTING LABORATORY



★ YOUR TESTING MISSION

Ask another designer to test your prototype. Use their feedback to decide what you will change and improve.



1 TEST MY PROTOTYPE

Ask another designer to test your toy.

Toy Tester Check	Yes	A Little	Not Yet
Does it spin well?	☐	☐	☐
Is it easy to use?	☐	☐	☐
Is it fun to play with?	☐	☐	☐
Does it suit the user?	☐	☐	☐

FEEDBACK FROM MY TOY TESTER

One thing that worked well was:

One thing I could improve is:

2 EVALUATE MY PROTOTYPE

Think about your own testing and the feedback you received.

The most important thing I need to improve is:

Why does it need improving?



3 MY IMPROVEMENT

I will change:

★ This will make my toy better for the user because:



4 MY IMPROVED DESIGN

Update your design before you build your final toy.

Draw your improved toy. Use arrows and labels to clearly show what you changed.

★ LABEL THE PART YOU CHANGED.



5 WHY DO DESIGNERS EVALUATE?

Why is it important to test and evaluate a toy?
Designers test and evaluate toys because:



KEY VOCABULARY



feedback



evaluate



improve



prototype



user



LESSON 6

FACTORY PRODUCTION DAY!

JUNIOR TOY DESIGNER – CONSTRUCTION WORKSHOP



YOUR CONSTRUCTION MISSION

Use your improved design to build your final spinning toy. Follow your plan, work safely and check your toy as you build.



1 BUILD YOUR FINAL TOY

Tick each step as you complete it.

- ☐ I used my improved design.
- ☐ I followed my building steps in order.
- ☐ I used tools and materials safely.
- ☐ I worked carefully.
- ☐ I checked my design as I built.



2 CHECK YOUR FINAL TOY

Test your finished spinning toy.

Final Toy Check	Yes	Not Yet
Does it spin successfully?	☐	☐
Is it easy for the user to use?	☐	☐
Is it fun to play with?	☐	☐
Is it strong enough to use?	☐	☐



3 DID YOUR IMPROVEMENT WORK?

Think about the change you planned in Lesson 5.

What did you improve? _____



Did your improvement make your toy better?

- ☐ YES ☐ A LITTLE ☐ NOT YET

How did it make your toy better? _____

4 GET READY FOR THE TOY EXPO

One thing I want to tell people about my final toy is:



KEY VOCABULARY



construct



sequence



materials



improve



final

LESSON 7

MRS MCGREGOR'S GREAT TOY EXPO!

TOY EXPO — ASSESSMENT WORKSHEET



1 INTRODUCE YOUR TOY



My toy is called: _____



I designed my toy for: _____



The purpose of my toy is to: _____

2 EXPLAIN HOW IT WORKS



How does the user make your toy spin?

☐

Twist

☐

Flick

☐

Blow

☐

Pull

☐

Wind

☐

Push



The force makes my toy: _____



Explain how the force creates movement:

3 FEATURES FOR THE USER



What features make your toy fun to use?



Why will your user like these features?



SHARE • EXPLAIN • IMPRESS!



LESSON 7

MRS MCGREGOR'S GREAT TOY EXPO!



4 MATERIALS AND DESIGN CHOICES



The materials I used were:

I chose these materials because:



5 FROM FIRST IDEA TO FINAL TOY



One thing I changed after testing was:

Why did you make this change?

How did the change make your toy better?



6 EVALUATE YOUR FINAL TOY

Tick what is true about your final toy.



My Final Toy	Yes	A little	Not yet
Spins well	☐	☐	☐
Is easy for the user to use	☐	☐	☐
Is fun to play with	☐	☐	☐
Has interesting features	☐	☐	☐
Works the way I wanted it to	☐	☐	☐



My favourite part of my toy is: _____



I like it because: _____



LESSON 7

MRS MCGREGOR'S GREAT TOY EXPO!



7 WHAT WOULD YOU IMPROVE NEXT TIME?

If I made my toy again, I would: _____



This would make my toy better because: _____



8 MY FINAL DESIGNED SOLUTION

Draw your final spinning toy. Add labels to show its important features.



9 TOY EXPO' PRESENTATION CHECK

I explained:

- | | |
|--|---|
| ☐ my user | ☐ the materials I used |
| ☐ my toy's purpose | ☐ what I changed after testing |
| ☐ how a force makes it move | ☐ why my design improved |
| ☐ the features that make it fun | ☐ what I would do next time |



OFFICIAL TOY DESIGNER REFLECTION

I am proud of my toy because: _____



TOY FACTORY CHALLENGE COMPLETE!



KEY VOCABULARY:



user



purpose



force



prototype



evaluate



improve



designed solution