

YEAR 1

DESIGN & TECHNOLOGIES

Teacher Booklet

Lesson plans and worksheets

IMAGINE
DESIGN
MAKE
TEST
IMPROVE

SMALL
DESIGNERS
BIG
IDEAS

SPIN
PLAY
LEARN
CREATE

JUNIOR
TOY DESIGNER

TOYS
BRING
PEOPLE
TOGETHER

MRS MCGREGOR'S
TOY FACTORY

Mrs McGregor's Toy Factory – Spinning Toy Design Challenge

Year / Level

Year 1 (Years 1–2 band)

Design & Technologies Context

Design & Technologies — Engineering principles and systems; Materials and technologies specialisations

Duration

7 x 40-minute lessons

Unit Overview

Students become Junior Toy Designers at Mrs McGregor's Toy Factory. They investigate familiar spinning toys and how users apply forces to create movement; identify users, purposes and features; generate and communicate an annotated design; safely construct and test a prototype; use peer feedback to evaluate and improve their idea; follow an improved plan to construct a final spinning toy; and communicate and evaluate their designed solution at Mrs McGregor's Great Toy Expo.

Achievement Standard

Relevant Years 1–2 Design and Technologies achievement standard: By the end of Year 2 students identify the purpose of familiar products, services and environments. For each of the 2 prescribed technologies contexts they explore the features and uses of technologies and create designed solutions. Students evaluate their ideas based on their personal preferences. They communicate design ideas using models and simple drawings and follow sequenced steps to safely produce designed solutions.

Unit Rationale

This unit uses an authentic, story-based design challenge to make the design process visible and meaningful for Year 1 students. Learning progresses from investigating existing products and movement, to designing for a user, prototyping, testing, evaluating, improving, safely producing and communicating a final solution. Repeated use of the Design Journal provides a clear evidence trail of students' developing design thinking.

Key Concepts

- Products are designed for users and purposes.
- Technologies, materials and user-applied forces can affect movement in products.
- Design ideas can be communicated through drawings, labels, models and explanations.

- Prototypes, testing and feedback help designers evaluate and improve ideas.
- Materials, components, tools and techniques are selected and used safely to make designed solutions.
- Sequenced steps support successful production.

DESIGN • INVESTIGATE • CREATE

Mrs McGregor's
Toy Factory

Toys
Make a
Brighter
World

Lesson 1

The Invitation to Mrs McGregor's Toy Factory

Year 1
Design Technology



Duration:
40 minutes



Lesson Focus:

Investigating existing spinning toys to identify users, purposes, features and ways they spin.



Resources



Lesson 1 YouTube:
The Invitation to Mrs McGregor's
Toy Factory (Banjo Education
Support YouTube Channel.)



Great Spinning Toy
Investigation poster



Selection of spinning toys:
spinning tops, fidget spinners,
pinwheels, paper helicopters,
whirlygigs, spinner discs and
button spinners



Year 1 Design Technology
Journal – Lesson 1
investigation page



Pencils and coloured pencils

Resource Purpose

The story establishes the design challenge. Real spinning toys give students concrete products to observe, handle and compare. The journal supports students to communicate what they notice about users, purposes, movement and features.

Success Criteria

- ✓ I can identify the user and purpose of a spinning toy.
- ✓ I can describe how a toy spins.
- ✓ I can identify a feature that makes a toy fun or easy to use.
- ✓ I can record an idea that may help me design my own toy.

Learning Intention



We are learning to investigate existing toys to find out who uses them, what they are designed to do, how they spin and what makes them fun.



Key Vocabulary

designer • product • user •
purpose • feature • investigate •
spin • movement • design

40-Minute Lesson Sequence

Time	Lesson Stage	Teacher Actions	Student Actions
0–8 min	Engage / Story	Watch or read Lesson 1. Pause briefly at the Research Department and the display of spinning toys. Ask: "Why do designers look at toys that already exist?"	Watch/listen, notice different toys and share initial ideas.
8–11 min	Introduce the Mission	Read the Learning Intention and Success Criteria. Explain that students are Junior Toy Designers working in the Research Department.	Identify what they need to discover about the toys.
11–15 min	Explicit Teaching 1	Teach USER and PURPOSE using one familiar toy. Model: "The user is the person who uses the toy. The purpose is what it is designed to do."	Identify a possible user and purpose.
15–19 min	Explicit Teaching 2	Teach FEATURE. Model noticing colour, shape, handle, pattern or simple mechanism. Explain that features can help a toy work or make it enjoyable.	Describe features and suggest why they are useful or fun.
19–23 min	Explicit Teaching 3	Demonstrate two different spinning toys. Compare how each is started and what happens when it spins.	Compare the toys and describe similarities/differences.
23–32 min	Student Investigation / Journal	Students investigate several spinning toys and complete the Lesson 1 journal page. Circulate and ask students to explain their observations.	Handle/test toys safely; record user, purpose, how it spins and favourite features.
32–36 min	Analyse and Discuss	Bring the class together. Compare which features were common and which toys suited different users.	Share findings and justify favourite features.
36–39 min	Design Thinking / I Wonder	Model: "I notice this spinner has a wide handle. I wonder if that makes it easier for a younger child to use?"	Develop a question about a spinning toy.
39–40 min	Exit Ticket	Prompt: "One feature I might use in my own spinning toy is _____ because _____."	Give an individual response.



Explicit Teaching

Design / Technology Idea: Designers investigate products that already exist before creating something new. They consider the user, purpose, how the product works and useful or enjoyable features.

Board Model:



Student Investigation

- Observe and safely use several spinning toys.
- Identify who might use each toy.
- Describe what each toy is designed to do.
- Notice how each toy spins.
- Identify features that make toys fun, interesting or easy to use.

Investigation / Design Prompt:

What can existing spinning toys teach us before we design our own?



Teacher Questioning

- What do you notice?
- Who do you think this toy is designed for? Why?
- What is its purpose?
- How does the user make it spin?
- Which feature makes it fun or easy to use?
- What idea could you borrow without copying the whole toy?



Expected Big Idea

Designers learn from existing products by investigating their users, purposes, features and how they work.



Curriculum Links – Year 1 Design and Technologies (AC v9)

AC9TDE01	Explore needs or opportunities for designing, and generate, clarify and communicate ideas.
AC9TDE02	Share and develop design ideas and include simple labelled drawings and/or models.
AC9TDP01	Explore and sort materials, components, tools and equipment and describe their purposes and safe use.
AC9TDP02	Follow safe procedures to make and produce designed solutions.
AC9TDE03	Share design ideas, decisions and simple processes with others using drawings, models and/or oral and written descriptions.

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

Year 1
Design Technology



Duration:
40 minutes



Lesson Focus:

Investigating how pushes and pulls create movement and comparing ways spinning toys are started.



Resources



Lesson 2 YouTube:
The Great Spin Test
(from Banjo Education
Support YouTube Channel.)



Engineering Department /
Great Spin Test visual



Spinning toys suitable for
twist, flick, blow, pull, wind
and push



Simple timers or teacher timer



Design Journal – Lesson 2
Great Spin Test page



Pencils

Resource Purpose

Students directly test movement rather than only describing it. The different toys allow comparison of actions and forces, while the journal captures evidence students can use when choosing how their own toy will spin.

Success Criteria

- ✓ I can identify a push or pull that makes a toy move.
- ✓ I can describe how different toys are made to spin.
- ✓ I can compare which toy spins longer or is easier to use.
- ✓ I can use my test results to choose a spinning method I might use.

Learning Intention



We are learning that pushes and pulls can make toys move, and that spinning toys can be started in different ways.



Key Vocabulary

force • push • pull •
movement • spin • twist •
flick • blow • wind • test

40-Minute Lesson Sequence

Time	Lesson Stage	Teacher Actions	Student Actions
0–8 min	Engage / Story	Watch or read Lesson 2. Focus on the TWIST, FLICK, BLOW, PULL, WIND and PUSH stations and Mrs McGregor's explanation of force.	Watch/listen and identify actions that started movement.
8–11 min	Introduce the Mission	Read Learning Intention and Success Criteria. Pose the investigation question: "What makes a spinning toy start moving?"	Predict and identify what will be tested.
11–15 min	Explicit Teaching 1	Teach force as a push or pull. Demonstrate a push and a pull with a familiar object.	Identify pushes and pulls.
15–19 min	Explicit Teaching 2	Demonstrate a twist/flick toy and a pull-string or wind-up toy. Connect each action to the force applied by the user.	Describe what the user does and what movement results.
19–23 min	Explicit Teaching 3	Model a fair simple comparison: start, observe, time/compare, record. Explain that designers use testing information to make choices.	Predict which toy will spin longest/easiest.
23–32 min	Student Investigation / Journal	Run the Great Spin Test. Students test selected toys and record how each starts, ease of use and relative spin time.	Test, observe, compare and record results.
32–36 min	Analyse and Discuss	Compare results. Ask whether all toys need the same action and which methods seemed easiest.	Share evidence and compare methods.
36–39 min	Design Thinking / I Wonder	Model a question such as: "What would happen if I flicked this spinner harder?"	Suggest a testable question about force or spinning.
39–40 min	Exit Ticket	Prompt: "A force can make a toy move by _____. For my toy I might use _____."	Complete an individual response.



Explicit Teaching

Design / Technology Idea: A force is a push or pull that can start or change movement. Spinning toys can use different user actions to apply a force.

Board Model:

USER
ACTION

FORCE
(PUSH/PULL)

MOVEMENT /
SPIN



Student Investigation

- Test toys that use different starting actions.
- Identify the action used to start each toy.
- Observe which toys spin for a short or long time.
- Compare which toys are easiest to start.
- Choose a preferred spinning method for future design work.

Investigation / Design Prompt:

How do different forces and user actions make spinning toys move?



Teacher Questioning

- What force did you apply?
- What happened after the force was applied?
- How is this toy different from the last one?
- Which was easiest to use? What evidence tells you that?
- Which method might suit your user? Why?



Expected Big Idea

Spinning toys do not move by themselves; a user applies a force that starts the movement.



Curriculum Links – Year 1 Design and Technologies (AC v9)

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AC9TDP01	Explore and sort materials, components, tools and equipment and describe their purposes and safe use.
AC9TDP02	Follow safe procedures to make and produce designed solutions.
AC9TDE03	Share design ideas, decisions and simple processes with others using drawings, models, and/or oral and written descriptions.

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

My Prediction

I think _____
will spin the longest.



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



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

Year 1
Design Technology



Duration:
40 minutes



Lesson Focus:

Generating and communicating an annotated spinning-toy design for a chosen user and purpose.



**PLAN
DESIGN
CREATE**

Resources



Lesson 3 story/video:
The Secret Design Studio
(Banjo Education Support
YouTube Channel)



Design Studio poster /
possible spinning toys visual



Possible materials poster



Teacher model of an
annotated design



Design Journal – Lesson 3
design page



Pencils, erasers, rulers and
coloured pencils

Resource Purpose

The story and model show that designing involves deliberate choices. Visuals provide inspiration without prescribing one solution. The journal allows students to communicate a planned designed solution using drawings, labels and reasons.

Success Criteria

- ✓ I can choose a user and purpose for my toy.
- ✓ I can draw and label my design.
- ✓ I can show how the user will make my toy spin.
- ✓ I can explain reasons for my design choices.

Learning Intention



We are learning to create and communicate a spinning-toy design that suits a user and purpose.



Key Vocabulary

design • user • purpose •
annotated • label • materials •
feature • force • design decision
• plan

40-Minute Lesson Sequence

Time	Lesson Stage	Teacher Actions	Student Actions
0–8 min	Engage / Story	Watch or read Lesson 3. Pause when James begins drawing before choosing a user. Ask why Mrs McGregor stops him.	Recognise that designers need a user and purpose before finalising ideas.
8–11 min	Introduce the Mission	Read Learning Intention and Success Criteria. Explain that today students work in the Design Studio.	Choose/consider a user for their toy.
11–15 min	Explicit Teaching 1	Re-teach USER and PURPOSE. Model how a younger/older user might influence size, ease of use and features.	Suggest design choices for different users.
15–19 min	Explicit Teaching 2	Model an annotated design: clear drawing, arrows and labels for materials, colours, spinning method and features.	Identify what makes the model understandable.
19–23 min	Explicit Teaching 3	Model explaining a design decision using “I chose ____ because ____.” Emphasise that choices should have a reason linked to the user, purpose or function.	Practise orally justifying one choice.
23–32 min	Student Design / Journal	Students create their annotated spinning-toy design. Teacher conferences focus on user, force, materials and reasons.	Draw, label and annotate their planned toy.
32–36 min	Analyse and Discuss	Partner share. Partner asks one “Why?” question about a design choice.	Explain and refine design thinking.
36–39 min	Design Thinking / I Wonder	Students record one thing they are unsure about and will need to discover when they build.	Develop a question about whether part of the design will work.
39–40 min	Exit Ticket	Prompt: “My toy is for ____, so I designed ____.”	Give an individual user-linked design reason.



Explicit Teaching

Design / Technology Idea: A design communicates an idea before it is built. Designers make choices for a user and purpose and explain those choices with drawings, labels and reasons.

Board Model:



Student Investigation

Choose a user and purpose. Draw your toy. Label materials, colours and important parts. Show how a force will make it spin. Add fun/useful features and explain reasons for important choices.

Investigation / Design Prompt:

How can I communicate a spinning-toy idea that is suitable for my user?



Teacher Questioning

- Who is your user?
- What does your user need?
- What is the purpose of your toy?
- How will the user make it spin?
- Why did you choose that material/feature/colour?
- How will someone understand your drawing?



Expected Big Idea

Designers communicate ideas with annotated drawings and make purposeful choices for the user.



Curriculum Links – Year 1 Design and Technologies (AC v9)

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AC9TDP01	Explore and sort materials, components, tools and equipment and describe their purposes and safe use.
AC9TDP02	Follow safe procedures to make and produce designed solutions.
AC9TDE03	Share design ideas, decisions and simple processes with others using drawings, models and/or oral and written descriptions.

LESSON 3

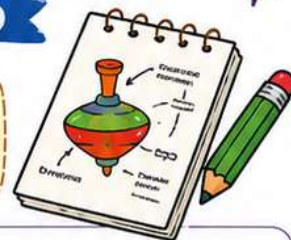
THE SECRET DESIGN STUDIO

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!

Year 1
Design Technology

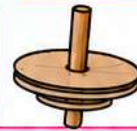


Duration:
40 minutes



Lesson Focus:

Safely constructing and testing a first prototype to discover what works and what needs to change.



**BUILD
TEST
IMPROVE**

Resources



Lesson 4 YouTube:
Prototype Trouble!
(from Banjo Education
Support YouTube Channel.)



Prototype Workshop /
Safe Designers poster



Students' annotated designs



Cardboard, paper, straws,
bottle lids, paddle pop sticks
and suitable recycled materials



Child-safe scissors, tape, glue
and other approved joining
materials



Design Journal – Lesson 4
prototype test page

Resource Purpose

Construction materials allow students to turn drawings into tangible first versions. Safety visuals support responsible tool use. Testing the prototype gives students evidence about whether their design functions as intended.

Success Criteria

- ✓ I can follow my design while building.
- ✓ I can use tools and materials safely.
- ✓ I can test how well my prototype spins.
- ✓ I can identify something that worked and something that may need changing.

Learning Intention



We are learning to safely build and test a prototype so we can discover what works and what may need to change.



Key Vocabulary

prototype • construct • design
material • tool • safe • test
wobble • balance • improve

40-Minute Lesson Sequence

Time	Lesson Stage	Teacher Actions	Student Actions
0–7 min	Engage / Story	Watch or read Lesson 4. Focus on the meaning of prototype and James's wobbling toy.	Explain why a prototype does not need to be perfect.
7–10 min	Introduce the Mission	Read Learning Intention and Success Criteria. Review Safe Designers expectations.	Identify safe behaviours and the purpose of a prototype.
10–14 min	Explicit Teaching 1	Define prototype: the first version built to test an idea. Contrast design drawing with prototype.	Describe what a prototype is for.
14–18 min	Explicit Teaching 2	Model safe cutting, joining and workspace routines relevant to the available tools/materials.	Demonstrate/identify safe practice.
18–22 min	Explicit Teaching 3	Model a quick prototype test: Does it spin? Wobble? Spin for long? Is it easy to use? Explain that observations become evidence for improvement.	Predict what they may need to check in their own design.
22–33 min	Student Construction / Journal	Students construct prototypes from their designs. As students finish, begin first tests and record observations.	Build safely, refer to plans and test prototypes.
33–36 min	Analyse and Discuss	Share examples of something that worked and a problem discovered. Reinforce that finding a problem is useful design information.	Describe test observations without treating problems as failure.
36–39 min	Design Thinking / I Wonder	Students complete "I notice..." and "I wonder..." about their prototype.	Generate a question to investigate in further testing.
39–40 min	Exit Ticket	Prompt: "My prototype taught me that _____."	State one piece of evidence from testing.



Explicit Teaching

Design / Technology Idea: A prototype is a first version of a design. Designers build prototypes to test ideas and discover what works and what needs to change.

Board Model:



Student Investigation

- Follow the annotated design to construct a prototype.
- Use tools and materials safely.
- Test whether the prototype spins.
- Observe wobble, spin time, ease of use and fun.
- Record what worked and what needs checking.

Investigation / Design Prompt:

What can my prototype teach me about my design?



Teacher Questioning

- Are you following your design?
- What changed when you built the real object?
- What happened when you tested it?
- What evidence shows that part worked?
- What problem did your prototype reveal?
- What might you test next?



Expected Big Idea

Prototypes help designers learn about their ideas by turning a plan into something that can be tested.



Curriculum Links – Year 1 Design and Technologies (AC v9)

AC9TDE01	Explore needs or opportunities for designing, and generate, clarify and communicate ideas.
AC9TDE02	Share and develop design ideas and include simple labelled drawings and/or models.
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AC9TDP02	Follow safe procedures to make and produce designed solutions.
AC9TDE03	Share design ideas, decisions and simple processes with others using drawings, models and/or oral and written descriptions.

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

Year 1
Design Technology



Duration:
40 minutes



Lesson Focus:

Using peer testing and feedback to evaluate a prototype and improve the design.



Resources



Lesson 5 YouTube:
The Great Toy Testing Lab
(from Banjo Education
Support YouTube Channel.)
Testing Laboratory /
Toy Tester Checklist poster
Students' prototypes and
original annotated designs



Testing mats and optional
timers



Feedback cards / Design
Journal – Lesson 5 evaluation
and improvement page



Pencils and coloured pencils

Resource Purpose

Peer testing gives students information from another user's perspective. The checklist structures feedback around function and appeal. Revising the design makes the relationship between testing, evaluation and improvement visible.

Success Criteria



I can test another designer's prototype carefully.



I can give helpful feedback about how the toy works.



I can evaluate what worked and what needs improving.



I can update my design and explain why I made the change.

Learning Intention



We are learning to use testing and feedback to evaluate a prototype and improve our design.



Key Vocabulary

feedback • evaluate • improve
prototype • user • test
feature • function • change
evidence

40-Minute Lesson Sequence

Time	Lesson Stage	Teacher Actions	Student Actions
0–7 min	Engage / Story	Watch or read Lesson 5. Focus on James's concern about feedback and Mrs McGregor's TEST → EVALUATE → IMPROVE message.	Discuss why feedback is about the design, not the designer.
7–10 min	Introduce the Mission	Read Learning Intention and Success Criteria. Explain the role of a Toy Tester.	Identify what useful testing should tell a designer.
10–14 min	Explicit Teaching 1	Teach EVALUATE: think carefully about how well the design works. Model evaluating a sample toy using the checklist.	Use checklist language to make a judgement.
14–18 min	Explicit Teaching 2	Model helpful feedback: "It worked well because..." and "It could be easier for the user if..."	Practise giving specific, kind feedback.
18–22 min	Explicit Teaching 3	Model updating an original design after feedback. Use arrows/another colour and add a reason for the change.	Identify how a changed design communicates improvement.
22–31 min	Student Testing / Journal	Students swap prototypes, complete the Toy Tester Checklist and give feedback. Then evaluate their own prototype.	Test respectfully, record feedback and identify improvement priorities.
31–35 min	Improve the Design	Students update their annotated designs to show at least one change and why it is being made.	Revise and annotate the design.
35–38 min	Analyse and Discuss	Share examples of changes made because of evidence or feedback.	Explain how testing influenced a decision.
38–39 min	Design Thinking / I Wonder	Prompt: "I wonder whether my change will..."	Predict the effect of the improvement.
39–40 min	Exit Ticket	Prompt: "I changed ____ because testing showed ____."	Give an individual evidence-based design explanation.



Explicit Teaching

Design / Technology Idea: Evaluation means judging how well a design works using evidence. Feedback from users can help a designer decide what to keep, change or improve.

Board Model:



Student Investigation

- Test a peer's prototype.
- Use the Toy Tester Checklist.
- Give one helpful positive comment and one improvement suggestion.
- Evaluate own prototype using test evidence.
- Update the design to show an improvement and reason.

Investigation / Design Prompt:

What does testing and user feedback tell me I should improve?



Teacher Questioning

- What did the tester notice?
- What evidence shows the toy works well?
- What was difficult for the user?
- Which feedback will you use? Why?
- What exactly will you change?
- How do you predict that change will improve the toy?



Expected Big Idea

Designers evaluate prototypes using testing and feedback, then change their designs to improve the solution for the user.



Curriculum Links – Year 1 Design and Technologies (AC v9)

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AC9TDP01	Explore and sort materials, components, tools and equipment and describe their purposes and safe use.
AC9TDP02	Follow safe procedures to make and produce designed solutions.
AC9TDE03	Share design ideas, decisions and simple processes with others using drawings, models and/or oral and written descriptions.

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

Year 1
Design Technology



Duration:
40 minutes



Lesson Focus:

Following an improved design and ordered construction steps to safely make the final designed solution.

PLAN
BUILD
CHECK
CREATE



Resources



Lesson 6 YouTube:
Factory Production Day
(from Banjo Education
Support YouTube Channel.)



Construction Workshop /
Construction Rules poster



Students' improved
annotated designs



Approved construction
materials: cardboard, paper,
straws, bottle lids, paddle pop
sticks and recycled materials



Child-safe scissors, tape, glue
and approved tools



Design Journal — Lesson 6
final construction/reflection page

Resource Purpose

The improved design acts as the production plan. Construction materials and tools allow students to create their final designed solution, while the journal captures the relationship between prototype testing, design changes and the final product.

Success Criteria

- ✓ I can follow my improved design and steps in order.
- ✓ I can use tools and materials safely.
- ✓ I can check my design as I build.
- ✓ I can explain how my final toy is better than my prototype.

Learning Intention



We are learning to follow an improved design and use tools and materials safely to construct our final spinning toy.



Key Vocabulary

construct • final • designed solution
• sequence • improved design
• materials • tools • safe
• prototype • improvement

40-Minute Lesson Sequence

Time	Lesson Stage	Teacher Actions	Student Actions
0–6 min	Engage / Story	Watch or read Lesson 6. Focus on James nearly attaching the wrong piece and checking his plan.	Explain why designers refer back to their plans while constructing.
6–9 min	Introduce the Mission	Read Learning Intention and Success Criteria. Display the Construction Rules.	State the safety and construction expectations.
9–13 min	Explicit Teaching 1	Review the design journey: first design → prototype → test → feedback → improved design.	Identify which plan should guide final construction.
13–17 min	Explicit Teaching 2	Model following construction steps in order and pausing to check the design after each major step.	Sequence a short example construction.
17–20 min	Explicit Teaching 3	Review safe tool/material use and model a quick quality check for balance, secure joins and intended movement.	Identify what should be checked during building.
20–34 min	Student Construction	Students construct their final toys using improved designs. Teacher circulates, supports safe practice and prompts students to check plans.	Build final designed solutions safely and carefully.
34–37 min	Test and Compare	Students briefly test final toys and compare them with their prototypes/original plans.	Identify what changed and whether the improvement worked.
37–39 min	Design Thinking / Reflect	Prompt: "What did you change, and what difference did it make?"	Explain one improvement using evidence.
39–40 min	Exit Ticket	Prompt: "One improvement I made was _____ and it made my toy _____."	Complete an individual reflection.



Explicit Teaching

Design / Technology Idea: Final construction should be guided by the improved design, not simply the first idea. Designers work safely, follow an ordered process and check their work as they construct.

Board Model:



Student Investigation

- Follow the improved annotated design.
- Construct in a sensible sequence.
- Use tools and materials safely.
- Check the design during construction.
- Test the final toy.
- Compare the final toy with the prototype and original design.

Investigation / Design Prompt:

How can I use what I learned from my prototype to construct a better final toy?



Teacher Questioning

- What does your improved design tell you to do next?
- Why are you using that material?
- Have you checked your joins/balance?
- How is this different from your prototype?
- What evidence shows your improvement worked?
- Is there anything you would still change?



Expected Big Idea

Designers use improved plans, safe processes and ordered steps to construct a final designed solution.



Curriculum Links – Year 1 Design and Technologies (AC v9)

AC9TDE01	Explore needs or opportunities for designing, and generate, clarify and communicate ideas.
AC9TDE02	Share and develop design ideas and include simple labelled drawings and/or models.
AC9TDP01	Explore and sort materials, components, tools and equipment and describe their purposes and safe use.
AC9TDP02	Follow safe procedures to make and produce designed solutions.
AC9TDE03	Share design ideas, decisions and simple processes with others using drawings, models and/or oral and written descriptions.

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

Year 1
Design Technology



Duration:
40 minutes



Lesson Focus:

Communicating design decisions and evaluating the final spinning-toy designed solution.



Resources



Lesson 7 YouTube:
Mrs McGregor's Great Toy Expo
(from Banjo Education
Support YouTube Channel)



Mrs McGregor's Toy Expo
poster and display area



Students' final spinning toys,
original designs, improved
designs and journals



Toy Expo Assessment
Worksheet



Optional Expo Awards /
Official Toy Designer badges



Pencils

Resource Purpose

The Expo gives students an authentic audience for communicating their designed solution. The assessment worksheet collects evidence of user/purpose thinking, force and movement, materials, features, design changes and evaluation across the design process.

Success Criteria

- ✓ I can explain my toy's user, purpose and how it spins.
- ✓ I can explain important features and materials I chose.
- ✓ I can describe a change I made after testing and why it improved my toy.
- ✓ I can evaluate my final toy and suggest an improvement for next time.

Learning Intention



We are learning to explain our design decisions and evaluate how well our final spinning toy meets its purpose and suits its user.



Key Vocabulary

present • evaluate • designed solution • user • purpose • force • feature • materials • prototype • improve • design process

40-Minute Lesson Sequence

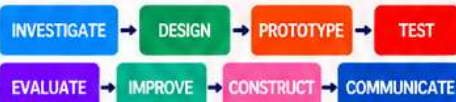
Time	Lesson Stage	Teacher Actions	Student Actions
0-6 min	Engage / Story	Watch or read Lesson 7. Focus on the three designers explaining their toys and reflecting on improvements.	Identify what a designer needs to explain at an Expo.
6-9 min	Introduce the Mission	Read Learning Intention and Success Criteria. Explain that the Toy Expo is the final assessment opportunity.	Review the information they need to communicate.
9-13 min	Explicit Teaching 1	Model a short Toy Expo presentation: toy name, user, purpose, how force makes it spin, features and materials.	Identify the important information in the model.
13-17 min	Explicit Teaching 2	Model explaining design change: prototype problem → change → reason → result.	Rehearse an improvement explanation with a partner.
17-20 min	Explicit Teaching 3	Model evaluation: what works well + evidence + what could improve next time. Emphasise that evaluation is not simply saying "I like it."	Suggest evidence that could support an evaluation.
20-31 min	Student Toy Expo / Assessment	Students present/demonstrate toys in small groups, stations or to teacher. Complete relevant oral assessment prompts.	Present, demonstrate and answer questions about their designed solution.
31-36 min	Assessment Journal / Evaluation	Students complete the Toy Expo Assessment Worksheet sections on final evaluation, favourite part and next improvement.	Record individual assessment evidence.
36-38 min	Analyse and Celebrate	Revisit the full design process and recognise how ideas changed from Lesson 1 to Lesson 7.	Sequence and discuss the design journey.
38-39 min	Design Thinking / I Wonder	Prompt: "If you had one more design challenge, what would you investigate or improve?"	Generate a future design question.
39-40 min	Final Exit Ticket	Prompt: "I am a toy designer because I can _____." Award/celebrate Official Toy Designer status.	Complete an individual reflection.



Explicit Teaching

Design / Technology Idea: Designers communicate how and why they created a solution and evaluate how well it works for the intended user and purpose. Evaluation includes evidence and ideas for future improvement.

Board Model:



Student Investigation

- Present the toy name, user and purpose.
- Demonstrate how force makes the toy spin.
- Explain features and materials.
- Describe a change made after prototype testing.
- Explain how the change improved the design.
- Evaluate the final toy.
- Identify one improvement for next time.

Investigation / Design Prompt:

How well does my final spinning toy meet its purpose and suit its user, and what evidence can I use to explain my design journey?



Teacher Questioning

- Who did you design this for?
- What is its purpose?
- How does the user apply a force?
- Why did you choose these features/materials?
- What did testing reveal?
- What did you change?
- How do you know the change improved the toy?
- What would you improve next time and why?



Expected Big Idea

Designers evaluate prototypes using testing and feedback, then change their designs to improve the solution for the user.



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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: _____



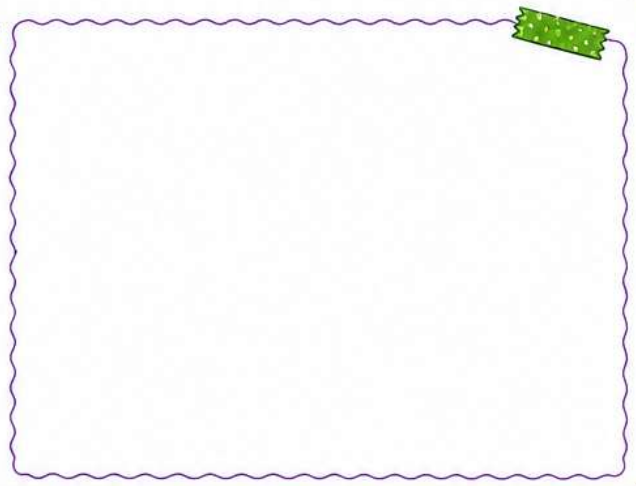
This would make my toy better because: _____



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 |

CHECK!



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