



Celebrating innovation and creativity in Sunderland  
(and the world!)



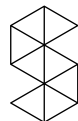
## EDUCATION PACK

Recommended for KS2

Pyrex100 is generously supported by the Esmée Fairbairn Collections Fund, administered by the Museums Association on behalf of the Esmée Fairbairn Foundation.



**SUNDERLAND**  
MUSEUM & WINTER GARDENS



**SUNDERLAND**  
CULTURE



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## How to use this pack

This pack is designed for use by teachers and educators. The pack contains a potted history of Pyrex, invented in the USA and produced for over 80 years in Sunderland, and explores a number of themes and subjects, offering ideas and resources for cross-curricular projects and activities:

- Sunderland Pyrex - made from a special kind of heat-resistant glass and often recognised by its colourful patterns - allows us to explore science, design, innovation & industry, creativity, local history, persuasive writing and more.
- This pack is created with KS2 in mind, but activities and resources could be adapted for older or younger learners.
- Digital resources including an online exhibition and specially commissioned videos bring the pack to life.
- PowerPoint presentations, worksheets and templates are pre-prepared and free to download for use in the classroom or educational setting, making it simple to deliver lessons and activities.

Please note that this pack, including the attached resources and additional downloadable content, is intended as a private resource, to be used for internal educational purposes only. As such, the images within this pack are for internal use only and may not be copied, distributed or used for any other purposes without appropriate permissions being sought.



2022 marks 100 years since Pyrex was first made in Sunderland and we are celebrating Sunderland's rich glassmaking history in our Pyrex100 programme.

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# CHAPTER 1: THE HISTORY OF PYREX

**Curriculum links: chronological narratives, changes in living memory, local history, positives and negatives of change**

[click here](#) for classroom resource *The Story of Pyrex*

Pyrex is a type of heat-resistant glass that was produced in Sunderland for 85 years.



*Jesse and Bessie Littleton.*

The origin of Pyrex began over 100 years ago on North American train lines. On cold winter nights, the hot flames inside gas lanterns caused the glass of the lantern to shatter. A company called Corning Glass Works in the USA developed a new type of glass by adding extra ingredients that could withstand changes in temperature.

A woman called Bessie Littleton was married to Jesse, an engineer at Corning. After many experiences of her dishes breaking in the oven, she asked her husband to bring home some glass samples for her to test at home. She made a sponge cake first, then tried meat and potatoes, and her successful attempts convinced Corning to launch a new line of kitchen and cookware made from this new glass.

This type of glass is called borosilicate glass, and is made of boron oxide, silica and other ingredients. These added ingredients mean the glass can withstand rapid changes in temperature, making it perfect for use in a home oven or in a science lab.

In 1922, Sunderland became the home of Pyrex in Britain. James A. Jobling's factory based in Millfield manufactured Pyrex glass that was exported all across the British Empire, including Australia, India, South Africa and Egypt, but not Canada.

Sunderland has a rich heritage of glass making that dates back to 674AD, when Benedict Biscop, founder of Wearmouth-Jarrow Priory, brought skilled craftspeople from Gaul to create the first stained glass window in England for St Peters Church, Monkwearmouth.



*Wear Flint Glass Works, Sunderland, 1920. This photograph shows the factory just two years before it took on the contract to produce Pyrex glass.*





### The 1920s-1930s

Jobling's factory began production making scientific glass for laboratories and casserole dishes for kitchens. In the 1920s and 30s, they expanded the range to dinner sets, pie and roasting dishes, and even teapots!

### The 1940s-1950s

Between 1948 and 1959, production increased by almost 100%. Pyrex dinnerware was marketed directly to housewives, reflecting social changes at the time. Before this time, many families employed servants to help with housework and food preparation. Pyrex could be used to prepare, cook and serve meals because of its heat resistance and attractive patterns. This meant less washing up and easier preparation of meals. Pyrex became so successful that by 1954, the factory had grown to the size of 20 football pitches.



*Pyrex advertising in 1962.*

### The 1960s-1970s

Some of the most popular Pyrex ovenware and dinnerware patterns were designed and made in Sunderland in the 1960s and 70s. Examples include Chelsea, June Rose and Carnaby Tempo. Factory employees would use transfers or spray techniques to decorate Pyrex. Tastes changed in the 1960s and a new Space Saver range of Pyrex was introduced with squarer handles and straighter-sided cups and platters.



### The 1980s - 2007

In 1978, Corning bought all of the shares in James A. Jobling's factory, and began having more of a say in the day-to-day running of the factory. Over the 1980s and 90s, the factory employed fewer staff and production slowed. Eventually, in 2007, the factory, which was the last commercial glassware factory in Sunderland, closed.

In Sunderland, many people still have a connection to Pyrex because of the factory, which at its height employed 3000 people. And of course, Pyrex itself is still used around the world – with the patterned pieces fetching high prices on second hand selling websites like eBay! Many families have passed down Pyrex objects which have stood the test of time because of their design and functionality.

## A HISTORY OF GLASS MANUFACTURING AT THE SUNDERLAND SITE

**152 YEARS**

- 1855** Wear Flint Glass Works, Trimdon Street, Sunderland, established by Nicholas French, marking the beginning of the firm's history.
- 1858** James Angus and Henry Greener take over the works and are the first North-East glassmakers to register a pressed glass design in December of that year.
- 1885** Company close to bankruptcy and taken over by its principal creditor, James Augustus Jobling, a prominent industrialist from Newcastle upon Tyne. He is proprietor of the Tyne Oil and Grease Works and also one of the largest mineral merchants in the North.
- 1902** Ernest Purser, nephew of James A Jobling joins the company. As business manager and chief technologist he was responsible for improving production methods and was instrumental in acquiring the PYREX patent. He later became his uncle's heir and took the surname Jobling-Purser.
- 1920** Only five glass works remain in Sunderland, among them the small, little known Wear Glass Works.
- 1921** Patent rights are acquired from Corning Glass Works, USA to manufacture and market PYREX glassware in the British Empire, excluding Canada.
- 1922** New glasshouse opened on the west side of the factory equipped with 30-40 ton tank furnace for the production of PYREX domestic and laboratory ware.
- 1938** British Empire patent purchased from Corning Glass Works USA for the manufacture of "Top of Stove" ware marketed in this country as "Flameware".
- 1939** "Coloured-sprayed" PYREX ovenware introduced, but production halted by the onset of war.
- 1939-1945** Production during Second World War adapted to needs of the services, eg. 40 million cans and tumblers made for the NAAFI by the Flint Glass Factory.
- 1948** New pressware factory built (Leopold Street) for manufacture of PYREX domestic items to meet post-war demand.
- 1956** Turret chain machine installed for automatic blowing of some laboratory wares and domestic beverage items.
- 1960** Electrosil Ltd. established jointly by Jobling, Tilling and Corning for the production of glass based metal-oxide resistors. New building erected at Deptford, Sunderland, for the storage of PYREX laboratory and industrial glassware.
- 1966** A set of glasses made to mark the World Cup matches being played in Sunderland.
- 1975** Queens Award to Industry for export achievement (third time). Name changed to Corning Limited.
- 1990** Tank 10 built.
- 1994** Corning Consumer Division bought by Newell Limited.
- 2006** ARC International takes over from Newell Limited.

'A History of Glass Manufacturing at the Sunderland Site' from internal factory newsletter, *Looking Glass: The End of an Era*, 2007.





# ACTIVITY: PYREX, SUNDERLAND, THE WORLD!

**Curriculum links: understanding connections between local, regional, national and international history, chronological narratives, changes in living memory, positives and negatives of change**

Download the activity cards [here](#) (colour) and [here](#) (black & white)

In this activity, learners will be able to see how Pyrex history fits into a wider context in the North-East, the country, and in the world, by working in groups to create a timeline of events.

This activity can be customised to suit your curriculum as you can add in events from the last 100 years that you have been studying with your learners.

## Activity Prep:

1. Print out the activity cards. You can either print B&W versions onto coloured paper or print the colour versions included in the pack onto plain white paper.  
*Tip – we advise you print these double sided so that the date is on the back of each card. If you don't think your learners will be able to resist turning them over to reveal the answer, just print the first side and refer to our answer sheet.*
2. Cut out and laminate the cards.

## Setting up and using the activity:

For this activity, you can choose to divide your learners up into groups.

*Suggested setup:*

Divide your learners into four groups: The History of Pyrex, The History of Sunderland, The History of the UK and The History of the World.

Each group will be given one of the packs of 10 cards. Each card has an event which can be put into chronological order. This can either be done in a list from earliest event to latest event, or you can ask the groups to sort the events onto a timeline.

After attempting to arrange their cards in chronological order, the groups can come together to see if any of their cards line up. When your learners have agreed on the order of their events, these can then be placed on a wider timeline on the board using blu-tak.

Next, you can ask your learners to come up to the board and turn over the card, revealing the date. Cards can be shifted into the correct order if needed, until the entire timeline is complete.

## Further Activities:

### Linking events

Some of the events on the timeline might come together to tell a story. For example, star designs were a popular pattern on Pyrex coffee sets at the same time as astronauts were travelling into Space, towards the stars, for the first time. You can use this timeline to explore the way that big world events impact design, pattern, taste and culture.

### Encouraging research skills

Learners can use their own interests to add to the timeline. Your learners might want to find out more local football facts, or to add birthdates of their family members onto the timeline. Learners could research using internet searches, by asking their families, or by finding books in the library.

### Sorting events

Learners could sort the events into order of importance. You could encourage your learners to think about these events from different people's points of view. Who was affected by these events? What was the impact then? Is there still an impact now?





DATE	PYREX	SUNDERLAND	THE UK	THE WORLD
1912	Borosilicate glass is invented in the USA at Corning's factory.			
1915	'Pyrex' becomes a registered trademark and brand name for the new glass			
1922	Pyrex production begins in Sunderland			British Archaeologist Howard Carter discovers Tutankhamen's tomb
1928			For the first time in the country, all men and women over the age of 21 have the right to vote	
1929		The New Wearmouth Bridge was built		
1937		Sunderland Wins FA Cup		
1939	1939 - 1945 Pyrex shifts production to help the war effort.		The Second World War begins	
1941		Sunderland is badly bombed and Sunderland Museum & Winter Gardens is hit		
1945				The Second World War ends
1948			The ship Empire Windrush arrives from the Caribbean, carrying hundreds of passengers to the UK.  The National Health Service (NHS) is founded	The Universal Declaration of Human rights is created
1950				Disney's animated film Cinderella is released





1960	1960s Coffee drinking was becoming more fashionable among cool young people. Pyrex began making coffee equipment, including a coffee set with a gold star design.			
1961				Yuri Gagarin becomes the first man in Space
1963				Valentina Tereshkova becomes the first woman in Space
1966	A set of glasses were made to mark the World Cup matches that were played in Sunderland.	Roker Park hosts world Cup matches	The World Cup is held in England. England wins!	
1968			Female workers at Ford motors go on strike for Equal Pay	
1969				The moon landing
1970			The Equal Pay Act protects the rights of men and women to be paid the same amount for the same work	
1973	The American company Corning takes over the Sunderland Pyrex factory	Sunderland Wins FA Cup... again!		
1974	Wearmouth Festival celebrates the anniversary of 1300 years since the founding of St Peter's Church and since glassmaking came to Sunderland.			
1977	Jimmy Carter, President of the United States of America, visits Sunderland's Pyrex factory.		The country celebrates Queen Elizabeth II's Silver Jubilee	



1980			The Employment Act entitles women to paid Maternity leave	
1986		The first car was made at Sunderland's Nissan factory		
1988		The last ship was launched on the River Wear		
1990				The World Wide Web (the internet) is invented
1992		Sunderland becomes a city		
1997		The Stadium of Light opens		
2002		The Metro arrives in Sunderland	The country celebrates Queen Elizabeth II's Golden Jubilee	
2007	Pyrex Manufacture ends in Sunderland			The iPhone is launched



## CHAPTER 2: JOBLING'S ART GLASS

**Curriculum links: art and design, design technology, sculpture techniques**

[click here](#) for classroom resource about Jobling's art glass

In the 1930s, the licence to make Pyrex in Sunderland was up for review. Because of the risk that the firm might lose the rights to produce Pyrex, they had to explore other ways of making money.

At the time, French designer glassware was very fashionable, with brands like Lalique selling expensive glass decorative objects. Jobling's factory recruited French designers to create glass in the most up-to-date colours that were bang on trend, imitating the more expensive French styles. The Sunderland factory sold it much more cheaply than the glass made by French firms, aiming at stylish, but not rich customers.



The profits made from sales were invested back into the company to improve efficiency as well as allowing research and development into new lines. Jobling's chemists worked towards producing stable and consistent coloured glass.



In 1933 an advertisement announced: 'A Revolution in British Pressed Glass Manufacture'. It was illustrated with their new range of decorative items 'in glass of soft pastel shades, such as opaline, a delicate grey, pink and bottle green, and exhibiting mouldings which are as soft and smooth in their outline, as though the pieces were, in fact, sculptured in glass.'





Lots of the designs were inspired by the natural world. Small sculptures of bears or elephants were perfect for a mantelpiece. Large bowls might show swooping birds, wreaths of pinecones, or even spooky spiderwebs.



In the end, the experiment didn't take off, and so the range was only made for a few years. Joblings Art Glass is quite rare and so is popular with collectors today. Some pieces have sold at auction for hundreds of pounds.



# ACTIVITY: JOBLING'S ANIMAL SCULPTURES

**Curriculum links: art and design, design technology, sculpture techniques**

Inspired by the animals which feature in the decorative art glass produced by James A. Jobling's factory in the 1930s, we have designed an activity exploring 3D glue-free cardboard sculptures using a cut and slot technique.



We've used recycled cardboard from packaging to create our animal sculptures, which we have then painted. You could also use collage materials to decorate your animal sculptures. Thicker, corrugated card will be trickier to cut through with scissors, so try and source thinner cardboard from packaging, postage boxes etc.

## You will need:

- [Animal templates](#)
- Cardboard
- Pens/pencils for drawing around templates
- Scissors
- Paint or collage materials

## Step 1:

Cut out the paper template pieces, lay them onto your cardboard and draw around them.

## Step 2:

Carefully cut out the shapes onto cardboard. Try and keep the slots small to begin with, as you can always make them larger if your pieces don't fit as you'd like them to (but it's difficult to make them smaller again!)

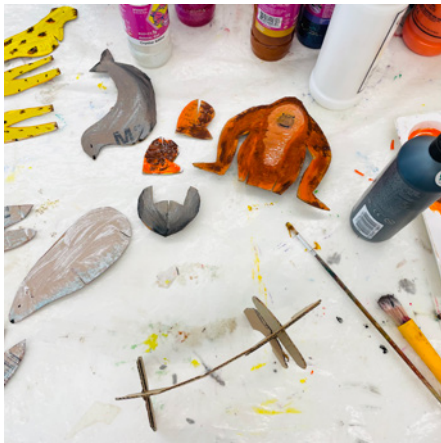


### Step 3:

Assemble your animal shape by carefully slotting the pieces together. You can adjust the size of your slots at this stage, taking a little off at a time until your pieces fit just right. Check that your animal sculpture can stand up by itself.

### Step 4:

Now you can decorate! You can take the pieces apart to decorate them, and assemble again when dry, or you can decorate the sculpture fully assembled. Use paint, pens or collage materials to decorate your sculpture.



Once you've got the hang of the technique, you can create anything you can imagine. Favourite animals, pets and even dinosaurs can be made using this technique.

### Top tips for making your own templates:

- Think about how your sculpture will balance. A large neck and head might need a large tail to counterbalance the sculpture.
- Trial and error is fine! This technique uses a material that can be easily found in recycling bins, so it's OK to experiment and see what works.
- Painting can cause the cardboard to warp and bend a little, so try and build up thinner layers of paint.
- Pipe cleaners slot well into the grooves of corrugated card, so you can experiment with adding them in (like we have with the tail of the cheetah)



## CHAPTER 3: SOCIAL REVOLUTION

**Curriculum links: Changes in Living Memory, homes, local history**

The twentieth century saw huge changes in the lives of ordinary people and particularly for women. Work was a way of life for working class women whether in the home or in the many factories in towns and cities, but as the twentieth century progressed more women went out to work from all levels of society.

The First World War dramatically changed the lives of women in this country. Men had left the country to fight in the war, so women were encouraged to take their places by working in factories to help the war effort. Many servants found factory work much better than being in service, because although shifts at the factories were long, once they had finished for the day their time was their own. After the war, servants left their employment in people's homes to work in factories, shops, and offices. Families who had always had servants to help with the housework found themselves having to do all the cooking and cleaning by themselves, and this became the role of many women.



*Women working at Jobling's Factory (date unknown).*

During the Second World War, women joined the services and worked in factories as part of the war effort. Those still at home were having to cope with rationing and other wartime restrictions. When conscription was brought in for women over 21, war nurseries were established which made it easier for women with young children to work.

Pyrex saw these changes in society and began to market their products as a way of saving time and money. 'Make your Rations go further' and 'Save fuel' were some of their advertising messages at this time and advertisements would include ration friendly recipes.



A Pyrex shop display.

After the war, people were fed up with the shortages, rationing and 'Make Do and Mend'. People wanted modernity and colour in their fashion, design, and homewares. With the new Elizabethan Age came gadgets which made life easier for modern women who were still responsible for most of the housework even if they were working.

In the 1950s, Pyrex advertised its products directly to these busy women juggling many roles and responsibilities, offering a way to save time, and save on the washing up! This marketing campaign was a big part of the success of Pyrex.

**'Pyrex' at home**

IN THIS KITCHEN are so many things in 'Pyrex'! Mixing bowl, plates, casseroles, saucepan, skillet, rolling pin... in fact almost everything Mrs. Britain needs for preparing, cooking and serving hot foods, straight from the oven to the table—and for chilling, storing and serving all her 'cold cookery' too! 'Pyrex' is practical and low-priced; smooth-finished and so easy to clean; cooks so much better—and quicker. No wonder Mrs. Britain insists on 'Pyrex' brand! It's the name she knows, the name you can depend on. So for your own protection, look for the name 'Pyrex' on every piece of oven-table glass.

SOME OF THE 'PYREX' IN THE PICTURE... YOU'LL SEE THE COMPLETE 'PYREX' RANGE IN SHOPS EVERYWHERE

<p><b>BABY'S BOTTLE</b> — the usual 8 oz. size, or the smaller 4 oz. size, for fruit juices etc. Mother knows they are safe and hygienic. 8 oz. 1/4 4 oz. 1/2</p>	<p>'Pyrex' Colonnade refrigerator sets. Yellow and green 24/3 All dishes sold separately. Mixing bowls Colonnade too. Selling blue or green—use them to all sorts of silver sets. 2 pr. 5/6</p>
<p><b>ROLLING PIN</b> — metal-jointed or wooden for perfect pastry! Complete with cork. 9/9</p>	<p><b>'PYREX' FLAMEWARE</b> Flameproof for boiling and frying in glass and serving straight on to the table. Skillets and saucepans 4/3 and 8/- (detachable handle 2/3 extra)</p>

25-piece dinner service in 'Pyrex' Colonnade. With 6 side plates, 6 round plates, 6 large dinner plates, 1 platter, 2 casseroles, 14 glass stoppers, sauce-bowls 66/3  
Also in 'Pyrex' champagne-coloured Colonnade. Unbelievably good looking and packed in special cartons 112/6

INSIST on seeing the name **'PYREX'** on every piece of **oven-table glass**

JAMES A JORLING & CO LTD WEAR GLASS WORKS BENDSHELD - FIRST AND LARGEST MANUFACTURERS OF HEAT RESISTING GLASS IN THE UNITED KINGDOM

Pyrex advertised directly to busy 'housewives', promising 'hygiene', 'perfect pastry' and 'easy to clean'.

SEPTEMBER 1968

**PYREX**  
leads the kind of life you do  
Tough enough for every day, pretty enough for best

OBTAINABLE FROM:

**NOW GUARANTEED TWO YEARS**

Replacement parts are available from your local 'PYREX' stockists

'Tough enough for every day, pretty enough for best'.





*A woman inspects finished Pyrex products before they are packed and shipped.*

As well as marketing its products to women, the Pyrex factory created a work environment that suited women coming into the workforce. Shorter shifts, timed to fit around school drop offs and teatime, meant that women with families were able to take on work that didn't interfere with childcare. [Follow this link](#) to watch Sarah and Joan, former Pyrex factory workers, talking about working at the Pyrex factory when they had young children (stop clip at 3.44).



In Sunderland, new estates with council houses and blocks of flats transformed the town with better quality, modern housing available for working people. Sunderland industries were busy producing not just Pyrex but also televisions, fridges, washing machines, clothing, chocolate, beer, and fizzy pop. Ships were still being built on the River Wear, and coal brought up from Monkwearmouth Colliery. In the 1960s, the town centre was modernised with a new pedestrianised shopping area, a multi storey car park and indoor bus station.

During the period that Pyrex was made in Sunderland, women gained the right to vote on equal terms with men (1928), the right to equal pay (1970), and the right to paid maternity leave (1980).

*The kitchen of the 1970s was bright, clean and full of gadgets.*



# ACTIVITY: PERSUASIVE PYREX

**Curriculum links: Persuasive writing, local history, materials and their properties**

## Design an advert for Pyrex

Pyrex became popular around the world because of its brilliant design. Pieces of Pyrex made in Sunderland more than 60 years ago are still being pulled out of kitchen cupboards every day to make casseroles, puddings, pies, and roast dinners.

Pyrex produced adverts to tell the public why they should buy their product, and they advertised directly to shops and businesses that might stock their products.

### **What makes a good advert?**

A good advert needs to be persuasive and eye-catching.

Pyrex often used simple, three-word phrases draw you in their products:

**'oven to table'      'easy to clean'      'less washing up'**

**'something quite new'      'new as tomorrow'**

**'durable, cookable, good-lookable'**

Good adverts also know their audience. In the 1950s, 60s and 70s, Pyrex' audience were busy, modern homemakers.

### **'PYREX: leads the kind of life you do'**

There are special techniques that advertisers use to convince someone to buy a product. Some examples are listed in the table below:

Persuasive writing techniques:	Example:	
<b>Rhyme and rhythm</b>	<b>This special glass is totally class!</b>	
<b>Onomatopoeia</b> (a word that is like the sound it describes)	<b>Tired of the clanging of heavy metal pans?</b>	<i>Note: This example is also a rhetorical question, another persuasive writing technique!</i>
<b>Alliteration</b> (using words in a sentence that have the same first letter)	<b>Perfect for Pyrex People</b>	



### Step 1:

Using a sheet of paper, think about who your target audience is. Be as specific as possible!

Examples:

- A student moving into their first flat
- Busy workers living in a city who want to impress their friends
- Someone who wants to learn how to improve their cooking skills

What will your target audience need? A student might be looking for something cheap, sturdy and reliable, while a budding chef might be thinking about the kind of food they will be able to make in their Pyrex. Someone looking to impress their friends will be looking for something stylish!

### Step 2:

On the same sheet of paper or a fresh sheet, make a mind map or a list.

Start off by thinking about what you know about Pyrex. Consider:

- The material
- The designs
- The uses of Pyrex

Try out different words or phrases you might use to describe Pyrex to sell it to your target audience.

Here are some examples:

<b>fantastic</b>	<b>hygienic</b>	<b>perfect</b>	<b>exciting</b>	<b>wonderful</b>
<b>beautiful</b>	<b>economic</b>	<b>fabulous</b>	<b>hard-wearing</b>	<b>timesaving</b>
<b>modern</b>	<b>superior</b>	<b>remarkable</b>	<b>colourful</b>	<b>amazing</b>
<b>elegant</b>	<b>miraculous</b>	<b>strong</b>	<b>dazzling</b>	<b>best</b>

### Step 3:

Now it's time to put your advert together!

Using a pencil and a ruler, plan the layout of your advert. You will need space for an image, the name of the product and text.

Other elements you might include:

- Vouchers or special offers
- Prices
- Logo

Now you can finish your advert. Don't forget to include the Pyrex brand name, and plenty of colour!



Look at the examples for inspiration.

Springtime brings out the best in **PYREX**

All prices are strictly maintained. Catalogue prices represent net cash prices to the public.

TRADE CATALOGUE (JANUARY 1954)

English **PYREX** oven-table glass

TRADE CATALOGUE (JANUARY 1954)

Springtime brings out the best in **PYREX**

All prices are strictly maintained. Catalogue prices represent net cash prices to the public.

TRADE CATALOGUE (JANUARY 1954)

**'Pyrex' at home**

In your nearest book is a 'Pyrex' brand glass, 'Pyrex' casserole, 'Pyrex' dishes... all to match. Here's a housewife who cooks in 'Pyrex' because in 'Pyrex' is complete from the oven to the table. The handy set of 'Pyrex' plates, one. Also, British, typical British housewife, knows that unadorned 'Pyrex' is so easy to clean. In the picture... YOU'LL SEE THE COMPLETE 'PYREX' RANGE IN SIMPLE EVERYDAYWARE.

clean, leaves the washing up tasks so much simpler—and better—end of dinner wash up. It's practical, low-priced—as wonderful Mrs. British housewife in 'Pyrex' is the reason she chooses the same you can depend on. So the same one purchase looks for the same 'Pyrex' in every piece of oven-to-table glass.

**BABY'S BOTTLE**  
The good five-ounce, one-ounce glass baby bottle with the wide mouth for easy feeding.

**PIE FUNNEL**  
Specially designed for use with all 'PYREX' PIE DISHS.

**MIXER**  
For mixing, whisking, separating and blending.

**INSIST ON seeing the name 'PYREX' on every piece of oven-table glass**

JAMES A. JOBLING AND CO. LTD. 100, MARK LANE, LONDON, E.C.3. (LONDON AND MANCHESTER BRANCHES OF THE COMPANY ARE IN THE UNITED KINGDOM)

EXPORT EDITION

**PYREX** THE TABLE GLASS BRAND

oven

to

table

glass

JAMES A. JOBLING AND CO. LTD. WEAR GLASSWORKS - SUNDERLAND

AUGUST, 1955

ACT NOW TO SECURE THE BOOK CLUBS' WONDERFUL NEW GIFT!

**PYREX** 4 CUP INSTANT TEA AND COFFEE JUG

for TEA COFFEE MILK CREAM CUSTARD

SEND THIS PAGE ENCLIT

THE BOOK CLUBS' WONDERFUL NEW GIFT!

NAME \_\_\_\_\_ ADDRESS \_\_\_\_\_

FROM THE BOOK CLUBS

**'PYREX' THE ORIGINAL OVEN-TO-TABLE GLASSWARE**

INSTANT COFFEE JUG  
With Candle Warmer  
Ref. No. 21

PIE FUNNEL  
Specially designed for use with all 'PYREX' PIE DISHS.  
Ref. No. 17

MIXER  
For mixing, whisking, separating and blending.  
Ref. No. 19

GUARANTEE OF REPLACEMENT OF PURCHASE AGAINST BREAKAGE BY OVEN HEAT FOR 12 MONTHS FROM DATE OF PURCHASE

**'PYREX' THE ORIGINAL OVEN-TO-TABLE GLASSWARE**

NURSING BOTTLE - (SINGLE ENDED)  
Ref. No. 54N Capacity 4 ozs.

DINNER SERVICES IN 'PYREX' GLASSWARE  
AVAILABLE FOR FOUR AND SIX PERSONS

FOUR PERSON DINNER SERVICE - 17 Pieces  
1 No. 100 Plates  
2 No. 200 Plates  
1 No. 100 Saucer  
1 No. 100 Bowl  
1 No. 100 Casserole  
1 No. 100 Mixer  
1 No. 100 Jug

SIX PERSON DINNER SERVICE - 25 Pieces  
4 No. 200 Plates  
2 No. 200 Saucers  
2 No. 200 Bowls  
1 No. 100 Casserole  
1 No. 100 Mixer  
1 No. 100 Jug

**'Pyrex' have a gift for making presents.**

Pyrex Casserole, Pyrex Jug, Pyrex Mixer, Pyrex Plates, Pyrex Bowls, Pyrex Saucers, Pyrex Dishes, Pyrex Tea Set, Pyrex Coffee Set, Pyrex Pie Dish, Pyrex Pie Funnel, Pyrex Instant Tea and Coffee Jug, Pyrex EasyRoast, Pyrex Decorated Casserole Set, Pyrex Jugger, Pyrex Jug, Pyrex Mixer.

**TRY JOBLING Opalware NOW**

See for yourself how much longer Opalware lasts. Order a trial quantity and put it into ordinary service, side by side with your normal crockery. And then order your full complement.

CARTONS - containing 24 articles - are free and non-refundable.

**JOBLING Opalware** is available from your usual suppliers.

For information about prices and distributors of Opalware, write to: James A. Jobling & Co. Ltd., Wear Glass Works, Sunderland, England.

**MORE AND MORE USERS DEPEND ON JOBLING OPALWARE FOR RISING REPLACEMENT COSTS**



## CHAPTER 4: PATTERN AND DESIGN

### Curriculum links: art and design, printing techniques

In Sunderland's Pyrex factory, different techniques were used to produce the brightly coloured patterns that are so recognisable today.

For many people, seeing a Pyrex pattern can take them back in time to their childhood. These patterns can remind people of smells of Sunday dinners, the warmth of a cup of tea, or a dessert for special occasions.

Click [here](#) to watch a specially commissioned short film about Pyrex patterns.

### Lithographic Transfer:

This technique was invented in 1796, and uses oil and chemicals to create a printing 'plate' which can be transferred onto another surface using water. The technique was originally used for printing musical scores and maps, and is still used today for Fine Art prints. 'Autumn Glory' was printed using this method.

Interested in finding out more about traditional Lithographic printing? [Here's a video](#) from National Museums Liverpool that shows the process.



*'Autumn Glory' teacup and saucer.*

### Screen-printed transfer:

Using a fine-mesh screen, an image can be printed using special inks that are pushed through the screen with a squeegee. In the Pyrex factory, this technique was used to produce transfers – a bit like a sticker – which can be fixed onto the surface of the Pyrex object. Designs like 'June Rose' were made like this. Each transfer was placed carefully by hand!



*'June Rose' teacup, saucer and plate.*



### Spray ware:

With some ranges, a spray of paint was used to coat the outside of the Pyrex dish. Using stencils, you can protect an area from the paint, then peel away the stencil, leaving a design behind. Lots of the 'Gaiety' range was created in this way.



*'Gaiety' Snowflake serving dish in black.*

### Hand-finished details:

Sometimes a gold rim would be painted onto the edge of a plate, cup or bowl to finish it off. Special rollers were used to keep the line straight and consistent, but a steady hand was needed!



*A Pyrex worker concentrating while they apply a gold rim to the edge of the plate.*

Most of the patterns and designs used by Pyrex were created by people in Sunderland, and have been sold and shared all around the world!



# ACTIVITY: PATTERN AND PRINT

**Curriculum links: art and design, printing techniques**

There are many different printmaking and pattern creation techniques. Printmaking allows us to make multiple copies of one artwork, image or design. Below are a few ways you can experiment with making a repeated design.

## FOAM PRINTING

This is a great way of turning a drawing into a print which you can repeat over and over again. Because of this, it works well for Christmas cards, gift tags, wrapping paper or posters.

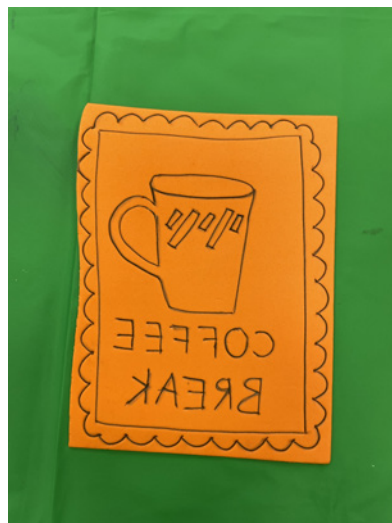


### You will need:

- A foam sheet or polystyrene sheet (the kind takeaway boxes are made from. The polystyrene sheet that comes in the bottom of a frozen pizza works well too!)
- A sharp pencil
- A flat paint tray (or sheet of acetate stuck down to the table using sticky tape)
- A roller (or sponge)
- Printing ink or poster paint in the colour of your choice
- Thick paper or thin card – this is what you will print onto
- Our [backwards alphabet cheat sheet](#)

**Step 1:** Cut down your foam sheet to the size you want your print to be.

**Step 2:** Using your sharp pencil, draw your design onto your foam sheet. Make sure you have really pushed down into the foam when you make your lines – you want to be able to feel the dent your pencil has made if you run your finger over the drawing.



Top tip! If you are including text or numbers in your design, you will need to write it backwards when you draw out your print. Use the backwards alphabet cheat sheet to help you.

**Example:**

**GLASS  
SSAIG**



**Step 3:** When you are happy with your design, you can prepare your printing set up. You will need your paper, your foam design, your paint tray and roller ready.

**Step 4:** Squeeze out some paint onto your tray. Try not to put too much on, because if you overload your print with paint you might lose some details.

**Step 5:** Use your roller to spread the paint around the tray until your roller is covered in a thin layer of paint.

**Step 6:** Roll the paint on top of your design using your roller. Aim to get paint all across the surface. You might need to roll side to side as well as up and down, or go back for a bit more paint!



Using a sponge instead of a roller? Dab your sponge into the paint and then over the surface of your print until you have covered your design in a thin layer of paint.





**Step 7:** Place your sheet of paper on top of your painted design, being careful not to move it around. Use your hands, a clean roller or the back of a spoon to firmly smooth down the paper. This action will help transfer the paint onto your paper.

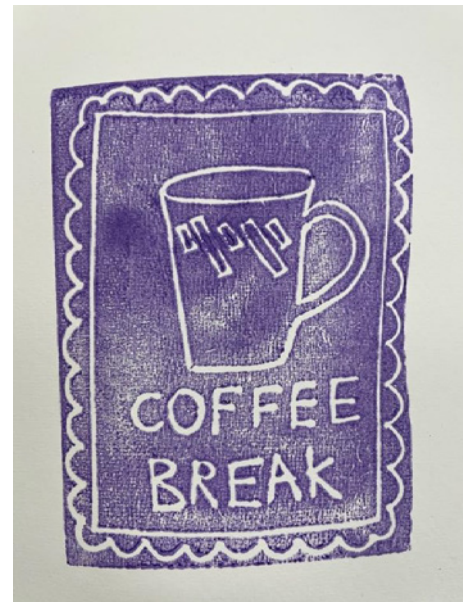


**Step 8:** Check your print by holding one edge of the paper down with one hand, and using the other hand carefully peel the paper upwards. If the print is uneven you can place the paper back and continue to rub and smooth it.

**Step 9:** In one motion, peel the paper away from the print block and reveal your print!

Now you can check your design. Are your lines drawn deeply enough to show up in the print? Are you happy with the level of detail in the design? You can wipe the foam clean with a baby wipe or rinse it under warm water so you can carry on working on it.

If you are happy with your design, you can start making multiples! Why not experiment with printing different colours, or test what happens when you put on more or less paint?



#### **Variation:**

You can use this same principle to make smaller foam stampers. Fix a sticky back foam shape onto the end of a cork or a piece of thick card, and use a pencil to draw a simple shape or initial into the foam.

You can then use an ink pad to make custom stampers!



# CHAPTER 5: FAMILY, CELEBRATIONS, FOOD!

**Curriculum links: British values, diverse Britain, PSHE, healthy eating, my community**

Lots of families use Pyrex because of its practicality. It is easy to wash, you can cook and store food in it and it is very hard wearing. Its attractive patterns and designs allow you to serve food straight from a Pyrex dish..

SEPTEMBER 1968

**JAJ**  
PYREX  
Regd. trade mark

leads the kind of life you do

Tough enough for every day, pretty enough for best

OBTAINABLE FROM:

NOW GUARANTEED TWO YEARS

Replacement parts are available from your local 'PYREX' stockists

*Advert for Pyrex, 1968.*



Many families are using Pyrex that is 40, 50, 60 or even 70 years old!



*Elizabeth, Ann and Jim with their Pyrex. In 1960, Jim's auntie travelled over 300 miles by train and bus with two Pyrex 'Clover' bowls – a wedding present for Jim and his wife Ann!*

**Follow the links to these short films to share with your class:**

[What are your family memories of Pyrex?](#)

[What is your favourite Pyrex recipe?](#)

**Suggested discussion topics:**

- Precious and special objects. How do we look after objects to make them last?
- Food that reminds you of home.
- Celebrating the food and recipes of different cultures.
- Wellbeing and healthy eating.

**Follow the links:**

Follow the links below to see our specially designed Pyrex recipe cards, made with Life Kitchen!

[Panaculty, Sweet Garam Masala Apple Crumble, Nana Joy's stuffing](#)

*Please note some of these recipes contain allergens including gluten and dairy. All of the recipes can be adapted to suit dietary requirements.*



## ACTIVITY: MEASURING MATHS

**Curriculum links: conversions, rounding up, addition, multiplication, healthy diets, preparing food**

For this activity, we have included a simple recipe for making porridge which requires measurements in millilitres and in grams.

We suggest you make this recipe with your learners. The recipe can be made with a microwave or on the stove, and can be fully customisable to accommodate dietary requirements and allergies.

You can use our worksheets to explore conversions, rounding up, addition, and multiplication using the recipe for porridge (or another recipe!)

[Printable Porridge recipe](#)  
[Measuring Maths activity sheets](#)



### **Porridge Recipe (serves 1)**

#### **Ingredients:**

50g porridge oats

350ml milk or water, or a mixture of the two

A pinch of salt

Toppings of your choice e.g. honey, fresh or dried fruit, berries, maple syrup, cinnamon

#### **Method:**

*On the hob:*

Put 50g porridge oats in a saucepan, pour in 350ml milk or water and sprinkle in a pinch of salt. Bring to the boil and simmer for 4-5 minutes, stirring from time to time and watching carefully that it doesn't stick to the bottom of the pan.

*In a microwave:*

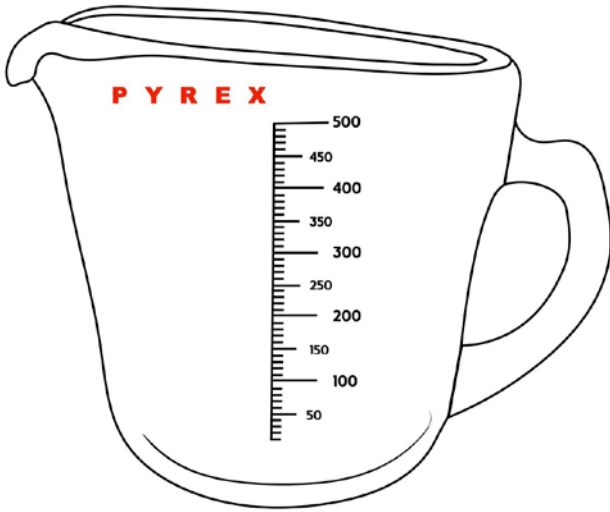
Mix the porridge oats, milk or water and a pinch of salt in a large microwaveable bowl, then microwave on High for 5 minutes, stirring halfway through. Leave to stand for 2 minutes before eating.

To serve your porridge, spoon it out into a bowl and add your toppings. Remember, it will be hot!

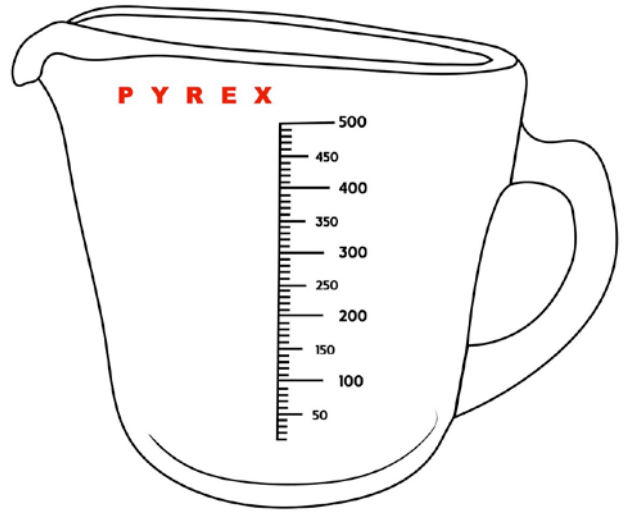


### Measuring maths

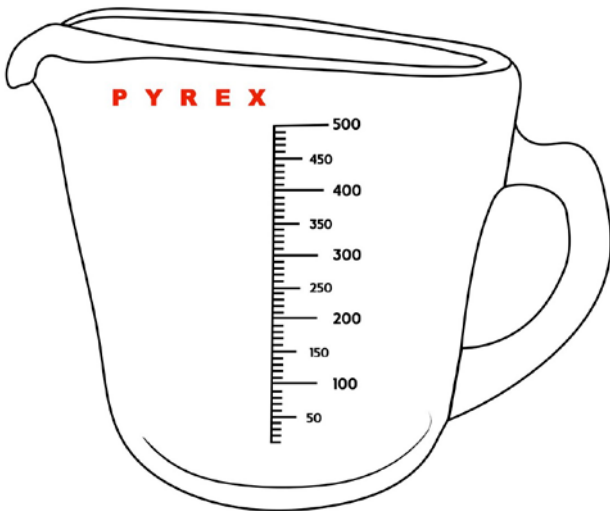
Colour the jug up to the fill line for the amount needed:



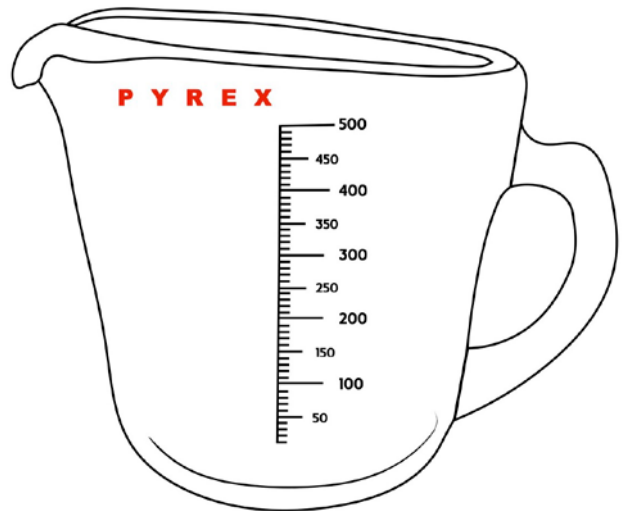
320ml



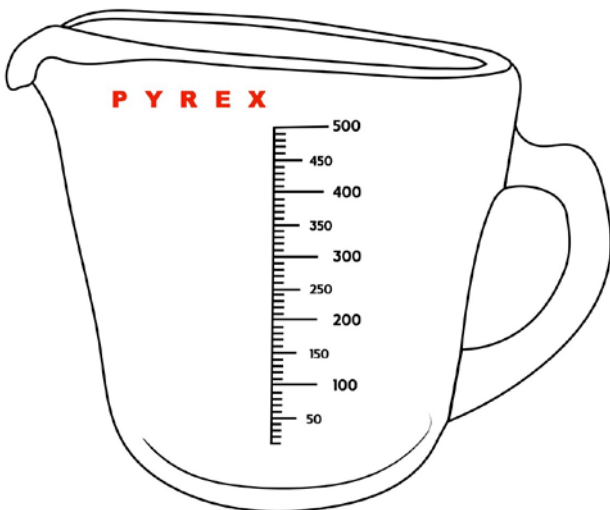
90ml



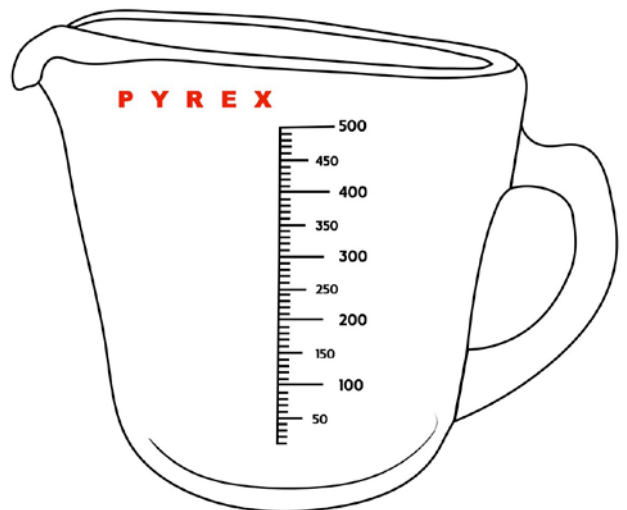
440ml



150ml



270ml



480ml



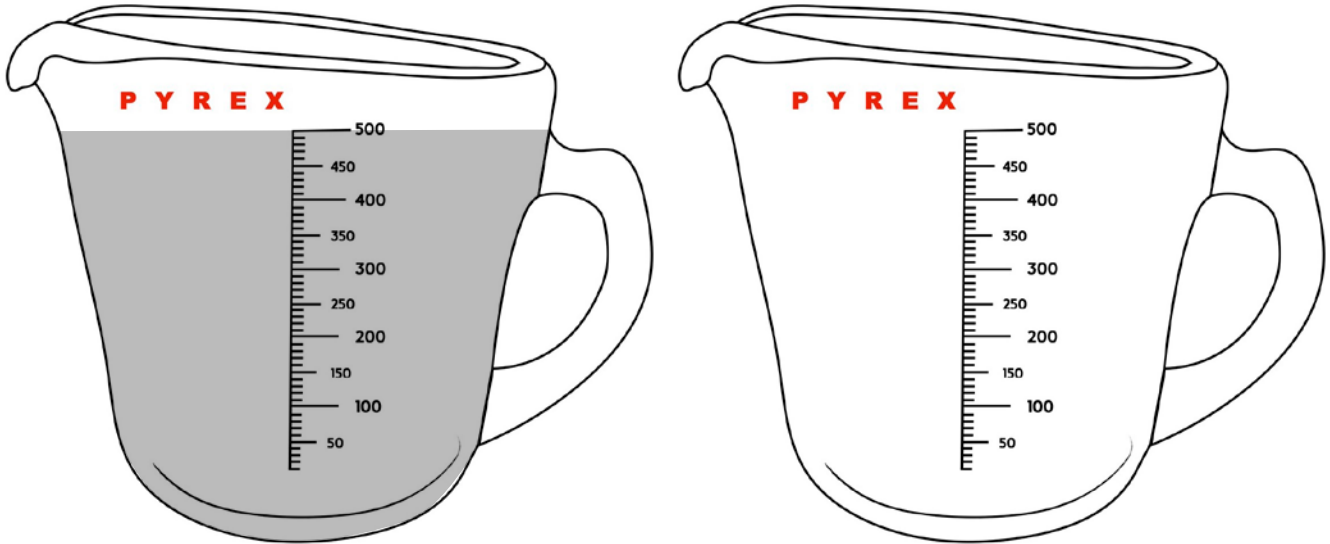
### Measuring Maths

Use your Porridge recipe to answer the following questions:

1. What quantities of ingredients would you need for your recipe to feed 5 people?
2. What quantities of ingredients would you need for your recipe to feed 10 people?
3. Can you convert your answer from question 2 from grams and millilitres into kilograms and litres?
4. What quantities of ingredients would you need for your recipe to feed your whole class?
5. Can you convert your answer from question 4 from grams and millilitres into kilograms and litres?
6. You are making porridge for two people. How much milk do you need?



7. For your two portions of porridge, you fill up the jug to 500ml, and pour the milk on top of the oats. How much more milk do you need for your recipe? Show on the second measuring jug.



8. Porridge oats cost £1.25 and milk costs 90p. How much does it cost to buy the ingredients?
9. How much change would you get if you used a £5 note to pay for your ingredients?
10. Honey is £1.50. Can you buy a jar of honey to drizzle on your porridge with your change? How much do you have left?



## CHAPTER 6: THE FUTURE OF GLASSMAKING

**Curriculum links: the work of artists, makers and designers; art and artists in the local community**

In 2007, Jobling's factory ended production. Pyrex is still being made in factories around the world, but the closure of the factory marked the end of commercial glassmaking here in Sunderland after hundreds of years.

### **So, is there no more glass being made in Sunderland?**

There is still lots of glass being made here in Sunderland! Even though there are no more factories making glass, there are artists and makers specialising in stained glass, glass blowing, glass fusing and glass etching to create artworks.

Sunderland is also one of the only places in the country where you can learn how to make glass at university, so artists travel from around the world to learn their skills here.

National Glass Centre's exhibitions tell the story of glass in Sunderland, and shows exciting works from artists based all around the world who work in glass.



*Glass blowers at National Glass Centre work together in teams to handle the hot glass while it is still molten.*



It is important that as many people as possible learn about our glass-making history here in Sunderland, and so there are lots of opportunities to watch, learn and join in.

You can watch a video of glassblowing at National Glass Centre by clicking [here](#).





## ARTIST PROFILE: ANTHONY AMOAKA-ATTAH

In this section, we hear from Anthony who grew up in Ghana and moved to Sunderland to learn how to make his artworks from glass.

### Meet the Artist

I am a contemporary Ghanaian glass artist who views glass as a 'western material'. I aim to manipulate glass to look like woven fabric. I achieve this by screen-printing using glass powders, glass enamels, waterjet cutting and finishing the process through kiln forming. I perceive glass as a language, platform or container to express my cultural identity.



Anthony Amoako-Attah, *The Umbrella*, 2021.



Anthony Amoako-Attah, *Stole*, 2021.

### My Practice

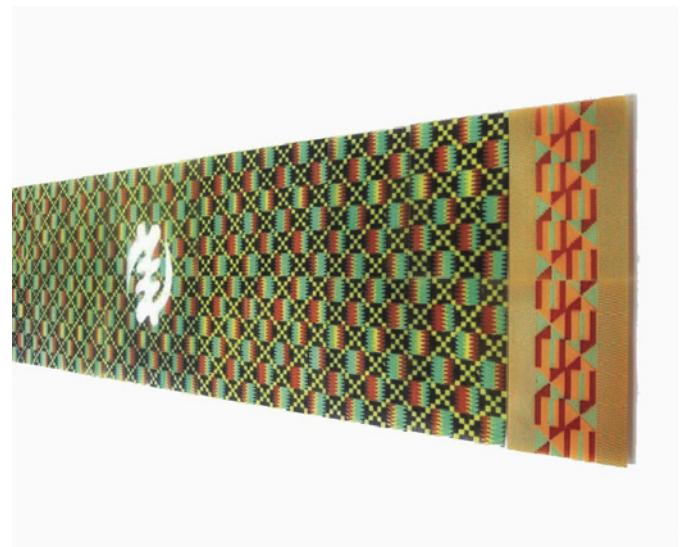
My work concentrates on social, political, and cultural issues that intertwine with integration, migration, dislocation and my personal identity through the use of Ghanaian cultural Adinkra symbols and native Kente patterns. I am marvelled by the way fabrics are made and the drape-like fold which bears the mental and physical expressions of the weaver and wearer.



Anthony Amoako-Attah, *The Ironing*, 2018.



Anthony Amoako-Attah, *Death*, 2020.



Anthony Amoako-Attah, *Fathia fata Nkrumah*, 2021.

### Transition Series

'Transition' is series of glass artworks that talk about my life from childhood dreams through to the realities of life. Each stage of my life is represented by fabrics. I believe the clothes we wear determine our mood and vice versa.



Anthony Amoako-Attah, *Transition II*, 2020.



Anthony Amoako-Attah, *Transition III*, 2021.

'Transition IV' talks about my experience of Sunderland when I first arrived as a student studying for a Masters in Contemporary Glass. Coming from Ghana, my self-expression and dress changed alongside my environment. The artwork also details the history of Sunderland through fabric design, glass making, coal mining and ship building found within the museum's collection alongside traditional Ghanaian Kente design and Adinkra symbols.



*Ship model from  
Sunderland Museum  
Collection.*

### **Production Process**

The design process for 'Transition IV' started with Kente patterns and Adinkra symbols alongside patterns, colours and symbols from Sunderland Museum & Winter Gardens' collection. The final design was printed and transferred onto screens, with the use of a squeegee. Glass powders were then forced through the screens to transfer the design onto glass. The glass was then fired in a kiln to make the glass powders permanent. The glass was fired for a second time to create the slumped look typical of woven fabric.



*Applying powders to the design.*



*Pushing the powder through the screen.*



*Printed design.*



# ACTIVITY: KENTE WEAVING PATTERNS

**Curriculum links: art and design, art from around the world**

## Introduction

Ghanian glass artist Anthony Amoaka-Attah uses traditional Kente patterns in his contemporary glass designs made in Sunderland. Kente is a traditional cloth worn by the Asante people and made by weaving colourful threads into strips on wooden looms to create special patterns and designs. The strips are then sewn together to make cloth. Each block, pattern and colour pattern has a symbolic meaning. There are also special Adinkra symbols which are laid over the patterns to give more layers of meaning.



*Image of Kente Cloth © Wikimedia Commons.*



**Gye Nyame**  
(Except for God)  
(Jee-Nya-Mee)



**Aban**  
(Strength or Authority)  
(Ah-bayn)



**Nkontim**  
(Loyalty, service)  
(En-Kon-Tim)

Kente cloth was originally only worn by Asante Kings and their courtiers, but now people from Ghana wear it for special occasions such as weddings and for 'Friday wear' to remember their cultural heritage. The Ghana Olympic team wore Kente cloth in the Olympic opening and closing ceremonies.



Image of people wearing Kente Cloth © Wikimedia Commons.



Image of Anthony Amoaka Attah with his artwork Umbrella. Photo by Colin Davison.

### Kente Colouring Activity:

Glass artist Anthony Amoaka-Attah has created this colouring sheet of a traditional Kente pattern. The pattern is called Fa hia kotowere Agyeman (Fa-Hee-A-Koh-Toh-Wear-Ey-Ag-Yeh-Man) which means 'lean on Agyeman when in need' in the Ghanaian language.

Agyeman was an especially generous king at the time this pattern was made and this pattern encouraged the people to tell him their worries and concerns. This pattern reminds us that we don't always have to handle everything. It is okay to ask for help.

The overall design represents hope, sharing and caring, kindness, family unity and collective responsibility.

### You will need:

Kente Weaving worksheet ([download here](#)) or 1cm squared paper

Red, yellow, green and black felt tip pens or coloured pencils

### Step 1:

Colour in the squares according to the colours in the key. An alternative is to use a sheet of 1cm squared paper and draw out a square grid measuring 11 squares by 11 squares to colour in.

1			1			1			1	
2	1		2	1		2	1		2	1
2	2	1	2	2	1	2	2	1	2	2
2	1		2	1		2	1		2	1
1			1			1			1	
3	4	3	4	3	4	3	4	3	4	3
1			1			1			1	
2	1		2	1		2	1		2	1
2	2	1	2	2	1	2	2	1	2	2
2	1		2	1		2	1		2	1
1			1			1			1	

- 1 RED
- 2 YELLOW
- 3 GREEN
- 4 BLACK



### Step 2:

When the whole grid is coloured in, try adding a traditional Adinkra symbol on top in black pen. There are some Adrinkra symbols in the introduction to Kente Patterns sheet and in the links section below. When you are happy with your design you could cut out and laminate your designs to make tablemats or coasters.

### Step 3:

Now try designing your own Kente pattern using your favourite colours on a piece of squared paper or a blank Kente worksheet. Choose 3 or 4 different colours and colour in a small pattern made up of a few squares. Now try repeating the same pattern across the worksheet to make a grid of 11 x 11 squares.

### Ideas for discussion

Why did you choose these colours? What moods and meanings can colours have?

Is there a meaning behind your Kente pattern? Could you give your pattern a name?

Could you add an Adinkra symbol to add extra meaning? What symbol or shape would be important to you? Could it be a favourite food, hobby, place or person?

### Links

[Adinkra Symbols of West Africa - Documents and Designs](#)

[Transition IV a new commission by glass artist Anthony Amoako-Attah enters Sunderland Museum & Winter Gardens' collection - Sunderland Culture](#)



## NEXT STEPS

### Thank you for using this Pyrex Education Pack!

Our aim was to create an engaging, cross-curricular resource full of information and ideas to help you and your learners explore an important aspect of Sunderland's heritage. There are lots more ways to get involved and to bring the story of Pyrex to life:

#### ASSEMBLIES

Would you like to book a FREE 30-minute interactive assembly from our Learning Team to introduce your school to Pyrex? An assembly is a great introduction to this pack, and an opportunity for your learners to handle Pyrex objects at school. This offer is only available until 31 March 2023, and from 1 April 2023 assemblies will be subject to a charge of £50.

To enquire about an assembly, please email [museumlearning@sunderland.gov.uk](mailto:museumlearning@sunderland.gov.uk)

#### LOANS BOX

From January 2023, a Pyrex loans box will be available to borrow as part of our [Museum in a Box](#) service. This box will contain Pyrex and other associated objects, as well as ideas of how to use these in your classroom. To book, please complete a [Learning Enquiry Form](#).

#### OUTSIDE OF THE CLASSROOM

Want to explore Sunderland's local history and the industries that shaped our city? Bring your groups to visit Sunderland Museum & Winter Gardens for workshops or self-guided visits. Find out about our schools offer [here](#).

If you and your learners are keen to find out more about glass artists and the science of glass, you can book onto a workshop at the National Glass Centre with their Learning Team. Find out more about their schools' programme [here](#).

#### COMMUNITY

Through our work with families and communities, we have found that Pyrex is a great subject to bring people together. Inter-generational conversations around Pyrex between grandparents, parents and children can bring this history out of the classroom and into real life. If you would like to host a Pyrex event at your school, our Learning Team would love to help bring it to life. Please contact [museumlearning@sunderland.gov.uk](mailto:museumlearning@sunderland.gov.uk) to let us know about your event.

#### FEEDBACK

We welcome all feedback from educators and learners alike. If you want to share your thoughts on this education pack, please email us at [museumlearning@sunderland.gov.uk](mailto:museumlearning@sunderland.gov.uk)



# RESOURCES, FILMS AND LINKS

## Downloadable resources:

[The Story of Pyrex](#)

[Pyrex, Sunderland, the World Activity cards \(colour\)](#)

[Pyrex, Sunderland, the World Activity cards \(B&W\)](#)

[Jobling's Art Glass](#)

[Animal Sculpture Templates](#)

[Backwards alphabet cheat sheet](#)

[Pyrex Recipe Cards](#)

[Printable Porridge recipe](#)

[Measuring Maths activity sheets](#)

[Kente Weaving worksheet](#)

[Pyrex design worksheet](#)

## Pyrex films to watch in your classroom:

[Pyrex 100: Stories from the Factory \(18.08\)](#)

[Pyrex Love Stories \(14.25\)](#)

[SHORT: What are your favourite Pyrex patterns? \(01.26\)](#)

[SHORT: What is your favourite Pyrex recipe? \(01.30\)](#)

[SHORT: What are your family memories of Pyrex? \(01.23\)](#)

## Online:

[Pyrex Love Stories: an online exhibition of People's Pyrex](#)