



Google Arts & Culture

# Female Pioneers in Science

Kate Rubins a member of Expedition 49 aboard the International Space Station works on an experiment inside the station's Microgravity Science Glovebox. NASA

Lesson plan created with



**TABLET**  
ACADEMY

## Introduction

# Female Pioneers in Science

Discover how a selection of inspirational women made significant discoveries and inventions in the fields of science and engineering.

This lesson is suitable for anyone but is recommended for students aged 14-16 years. The lesson is designed to support you as you explore Google Arts & Culture stories related to the lesson topic.

You can complete the lesson on your own working at home, with a group of friends, or in your classroom. They are designed so that you can work through them at a pace that suits you.

If you get stuck, you can talk to a teacher or parent.

Throughout the lesson you will find tasks to complete and questions to answer, so when you reach the end you will have used a range of skills to create something of your own that demonstrates your knowledge and understanding of the subject.

All you need to get started is any device with internet access.

**Are you ready to learn about inspirational women who shaped your world?**

## Things you'll need to complete this lesson.



Tablet, laptop or computer with access to the internet.



Paper, or a notebook, and pen to make notes as you go.



Drawing materials such as coloring pens and pencils, paper etc.



Scissors, glue, scrap paper and general stationary items.



Art materials, specifically paints and brushes.



A printer would be beneficial but not necessary – why not draw instead?

## Explore & Discover

# Female Pioneers in Science

In this Explore & Discover lesson, you will learn all about how women have made significant contributions to the world of science and engineering. You will explore their journeys and in doing so learn about finding dinosaurs, the dangers of radiation, aeronautical engineering, and important inventions created by women of science.

## Activities to complete

1. Journey through time to discover more about these gifted scientists and how their inventions and discoveries shaped today's world.
2. Uncover and record facts about the significant achievements they made in their respective fields of work.
3. Design your own Top Trump card to represent one of these scientists.
4. Create a timeline showing the achievements of women in science and engineering throughout the ages.

## Outcomes you will achieve

- Describe and identify marine fossils such as the Plesiosaurus.
- Be able to talk about these pioneering women from the fields of science and engineering.
- Understand their important contributions to science and engineering.
- Better appreciate what it is like to mass produce a product.

Look out for the following tips which tell you what to do when during the lesson.



Key information to remember and help guide you through the lesson.



Estimated time to complete a section or activity within the lesson.



Optional headphones to listen to videos and audio recordings.



Explore online content. Discover videos, stories, and zoom into pictures.



Activity - time to design, make or write something of your own.

NOT VENOMOUS.

PLATE I.



DIAMOND SNAKE.  
*Morelia spilotes.*

Helena Forde, del. et imp.

T. A. Engel, imp.



# Vocabulary

## Words to look out for in the lesson

aeronautical, aerospace, anatomy, astronaut, atom, aviation, bezoar stones, carbon, chemical reactions, chief engineer, clandestine, crew, density, engineer, enzymes, extinction, evolution, faeces, fighter, fossil collector, fossilised, gas, geology, gram, Hawker Hurricane, Ichthyosaur, insignia, Jurassic Coast, laboratory, mass production, matter, modifications, nanotubes, NASA, Nobel Prize, orbit, palaeontology, payload, physicist, pilot, Plesiosaurus, polio, polonium, professional society, propulsion, proteins, Pterodactyl, radiation, radioactivity, radiology, radium, RAF, research, Royal Air Force, Royal Canadian Air Force, satellite, simulator, skeleton, Space Shuttle, spacecraft, specialist, stress testing, thruster, UNESCO World Heritage Site, uranium, weightlessness, workforce, X-ray, zero gravity



Mary Anning Ichthyosaur fossil (1811)  
by Mary Anning/Joseph Anning  
The Natural History Museum

R. 1158

# What is this lesson about?

Discover women who had an impact on science and engineering.



This lesson will take around 120 minutes.

# Elements of the Lesson

The history of science and engineering was dominated by men, but are you aware that there have been unrecognized pioneers in this field who were women? Even though some would have had limited access to education and the workplace, they still made advances in science despite these difficulties. In this lesson we will explore four women who made a difference in their respective fields of science and engineering.

Today the world of science and engineering is open to everyone, irrespective of their gender. This has not always been the case, making some of these womens' achievements even more incredible as they had to be successful with very little support or recognition during their journeys of discovery.

By reading these stories you will get an understanding of various fields of science and technology such as physics, chemistry and engineering.



Click [here](#) to find out more about how women have broken down barriers in the world of science, technology, engineering and mathematics over the last 150 years. Do you think there are still barriers today?



Consider making notes as you go through the lesson, you will need them for some of the activities.



Nina Leen, 1968, LIFE Photo Collection



# Focus on Impact

Three women who made a significant impression in their respective fields.



This lesson will take around 75 minutes.

# Three women who shaped the world today...

Now you will learn about three women and their achievements.



[A portrait of pioneering fossil hunter Mary Anning \(1799-1847\), Natural History Museum](#)

## Mary Anning

The Dinosaur hunter who changed how the world thought about prehistoric life.



[Marie at Paris in 1892, Source : Musée Curie \(coll. ACJC\), 1892, Musée Curie, Paris](#)

## Marie Curie

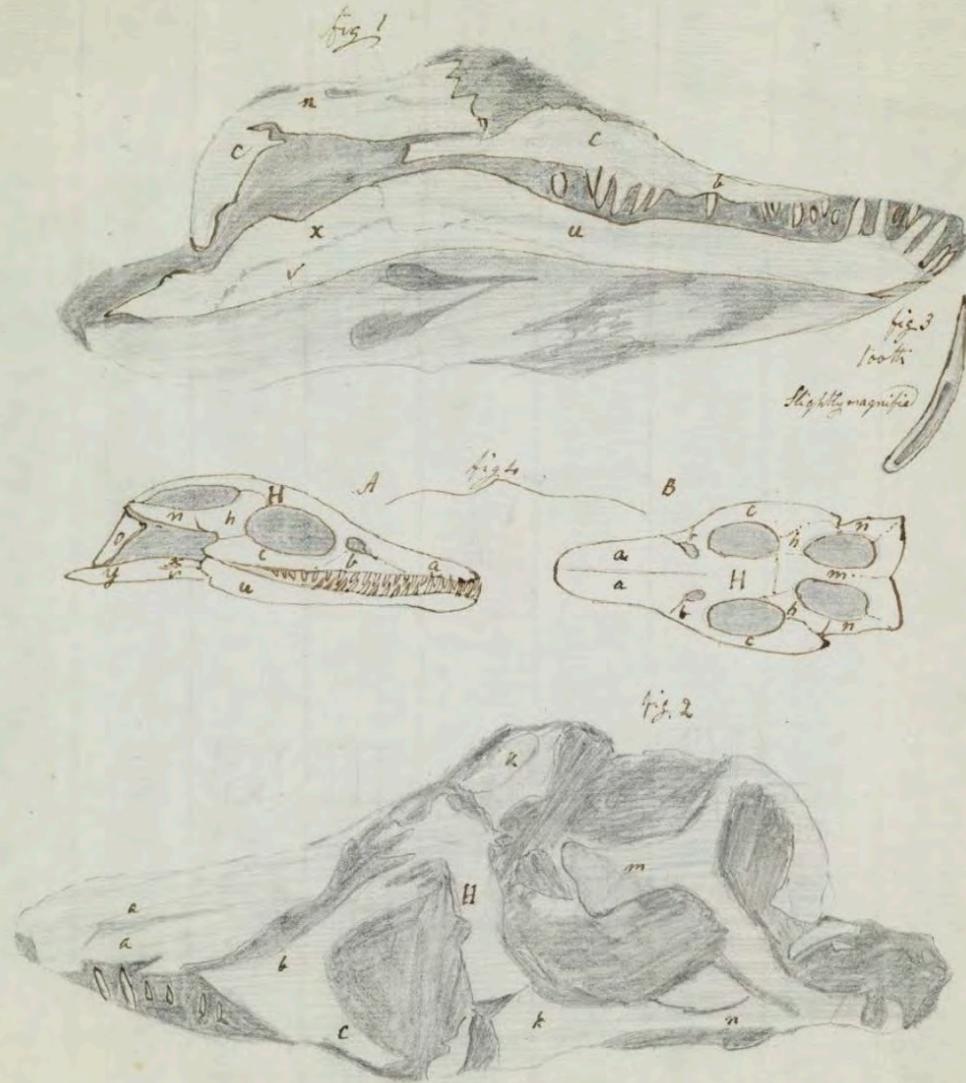
A pioneering researcher into radioactivity, and the first woman to win a Nobel Prize.



[Elsie Muriel Gregory MacGill, chef engineer at Canadian Car and Foundry Co. Ltd., Canada Aviation and Space Museum](#)

## Elsie MacGill

A Canadian technologist who broke down barriers in engineering.



Sketches of skulls by Mary Anning, Natural History Museum

# Mary Anning

21 May 1799 – 9 Mar 1847

Mary Anning was an English fossil collector, dealer, and paleontologist. She became known worldwide for the important finds she made in Jurassic marine fossil beds, particularly in the cliffs along the English Channel at Lyme Regis, in Southwest England. Her findings contributed to significant changes in scientific thinking about prehistoric life and the history of the Earth.

Anning searched for fossils in the area's Blue Lias cliffs, particularly during the winter months when landslides exposed new fossils that had to be collected before they were lost to the sea. In 1833 she nearly died during such a landslide that killed her dog, Tray. Her discoveries included the first correctly identified [ichthyosaur](#) skeleton; the first two nearly complete [plesiosaur](#) skeletons; the first [pterosaur](#) skeleton found outside of Germany; and important fish fossils. Her observations played a vital role in discovering that coprolites, known at the time as bezoar stones, were fossilized faeces. She also found that belemnite fossils contained fossilized ink sacs like those of modern [cephalopods](#).



[See the place where Anning found her fossils on the "Jurassic Coast" in SW England.](#)

[Discover more about the science of paleontology.](#)



Portrait of fossil hunter Mary Anning  
National History Museum, London



With no formal qualifications, she shook the scientific world with her discoveries near her home in England around 200 years ago.

[Explore](#)



## Activity 1

# Dinosaur Word Search



Print out a copy of this one, or recreate the Word Search grid yourself, then find the dinosaurs listed below.



## Extra Challenge

When you have found the dinosaur names provided, your next challenge is to find the three dinosaur names discovered by Mary Anning and her trusty dog, Tray, write them down, and find them in the Word Search grid.

See if you can remember them. If not, check your notes, or go back a page.



Can you zoom into Mary Anning' dog in her portrait? [A portrait of fossil hunter Mary Anning \(1799-1847\), Natural History Museum](#)

```

b v u s k h z i b x t t y y a
v g p l e s i o s a u r u s l
q s c t n d t d f l y t f x l
m e g a l o s a u r u s h e o
i y s p o t a r e c i r t r s
r o t p a r i c o l e v q t a
e j d s p i n o s a u r u s u
r u a s o y h t h c i p x h r
p t e r o d a c t y l z m o u
n o d o n a u g i x u m k b s

```

Can you find these dinosaurs in the grid above?

allosaurus

iguanodon

megalosaurus

spinosaurus

t-rex

triceratops

velociraptor

Add the 3 dinosaurs discovered by Mary and her trusty dog, Tray:

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-----  
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Remember - Words may be running, vertical, horizontal, diagonal, or even backwards.





# Marie Curie

7 Nov 1867 – 4 Jul 1934

Arguably one of the most famous women in Science, Marie Sklodowska was born in Warsaw, Poland. She studied at Warsaw's Flying University, a secret institution that operated between 1885 and 1905. At this time, Poland was under Russian rule and it became difficult for students to obtain a Polish higher education, particularly women. In 1891, she went to Paris to study physics and mathematics at the Sorbonne. There she met Pierre Curie, Professor of the School of Physics and they were married in 1895.

The Curies worked together investigating radioactivity, building on the work of Roentgen and Becquerel. In 1898, the Curies announced the discovery of a new chemical element, polonium. At the end of the year, they announced the discovery of another element, radium. The Curies, along with Becquerel, were awarded the Nobel Prize for Physics in 1903. Curie was the first woman to receive this acclaimed prize.

In 1906, after her husband was killed in a road accident, Marie took over his teaching post and became the first woman to teach at the Sorbonne. She also devoted herself to continuing the work they had begun together. In 1911 she received a second Nobel Prize, this time for Chemistry.

The Curies' research was crucial in the development of x-rays. During World War One, Curie helped equip ambulances with x-ray equipment, which she drove herself to the front lines. The International Red Cross made her head of its radiological service, and she gave training courses to medical orderlies and doctors on the new techniques.

Curie died in 1934, aged 66, at the Sancellemoz sanatorium in Passy, France. She died of aplastic anaemia, a disease caused by exposure to radiation during her scientific research and her radiological work at the field hospitals during World War One.



Let us find out more  
about Marie Curie  
and her work on  
radiation and X rays.

[Explore](#)

[Pierre and Marie Curie with Irène, in the garden of the Office of the Weights and Measure in Sèvres, in 1904, Albert Harlingue, 1904, Musée Curie](#)



## Activity 2

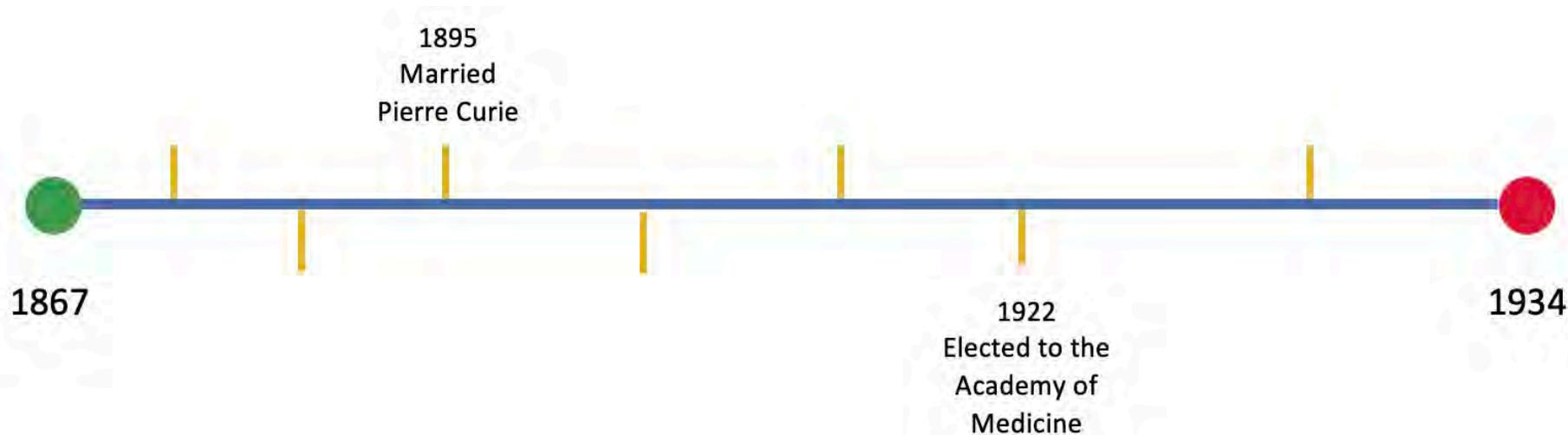
# Create a Timeline of Marie Curie's life



Using the information you have learned about Marie Curie, design a suitable timeline of her life. List the major events including her discoveries, awards, recognition, as well as events in her private life.



*Pierre and Marie Curie in their laboratory, circa 1898 (coll. ACJC), Source : Musée Curie (coll. ACJC), 1898, From the collection of: Musée Curie*



## Extra Challenge

Why not create one big timeline which includes the discoveries, inventions, and important dates for each of the two women you have been learning about. See what you can remember first, then fill in gaps by checking back in your notes or on previous slides.



15 to 20-minute activity

# Elsie MacGill

27 Mar 1905 – 4 Nov 1980

Elsie MacGill was an engineer and prominent Canadian feminist. In 1929, MacGill was the first woman to earn a master's degree in aeronautical engineering and was also the first practicing woman engineer in Canada.

In 1938, she became the chief aeronautical engineer of the Canadian Car & Foundry (Can Car). There, she headed the Canadian production of [Hawker Hurricane fighter planes](#) during the Second World War, leading a staff of 4500 people. They manufactured over 1,400 between 1939-1942, making two a day at the height of production. She became known as the "Queen of the Hurricanes".

In 1943 she moved to Toronto and established her own engineering consulting firm, working with commercial aircraft. After the war, she also became the first woman to serve as Technical Advisor to the International Civil Aviation Organization, focusing on aircraft airworthiness.

An active feminist, MacGill was the national president of the Canadian Federation of Business and Professional Women's Clubs (1962–64) and she was also a member of the Royal Commission on Women's Status in Canada (1967–70). She advocated women's rights and highlighted the bias she faced as a woman in a male-dominated field.

She died in November 1980 in a fatal car crash.

[Elizabeth "Elsie" MacGill, 1941, Canada Aviation and Space Museum](#)





She enjoyed a highly successful career in aeronautical engineering, after overcoming polio. She also helped shape the feminist cause in Canada.

[Explore](#)

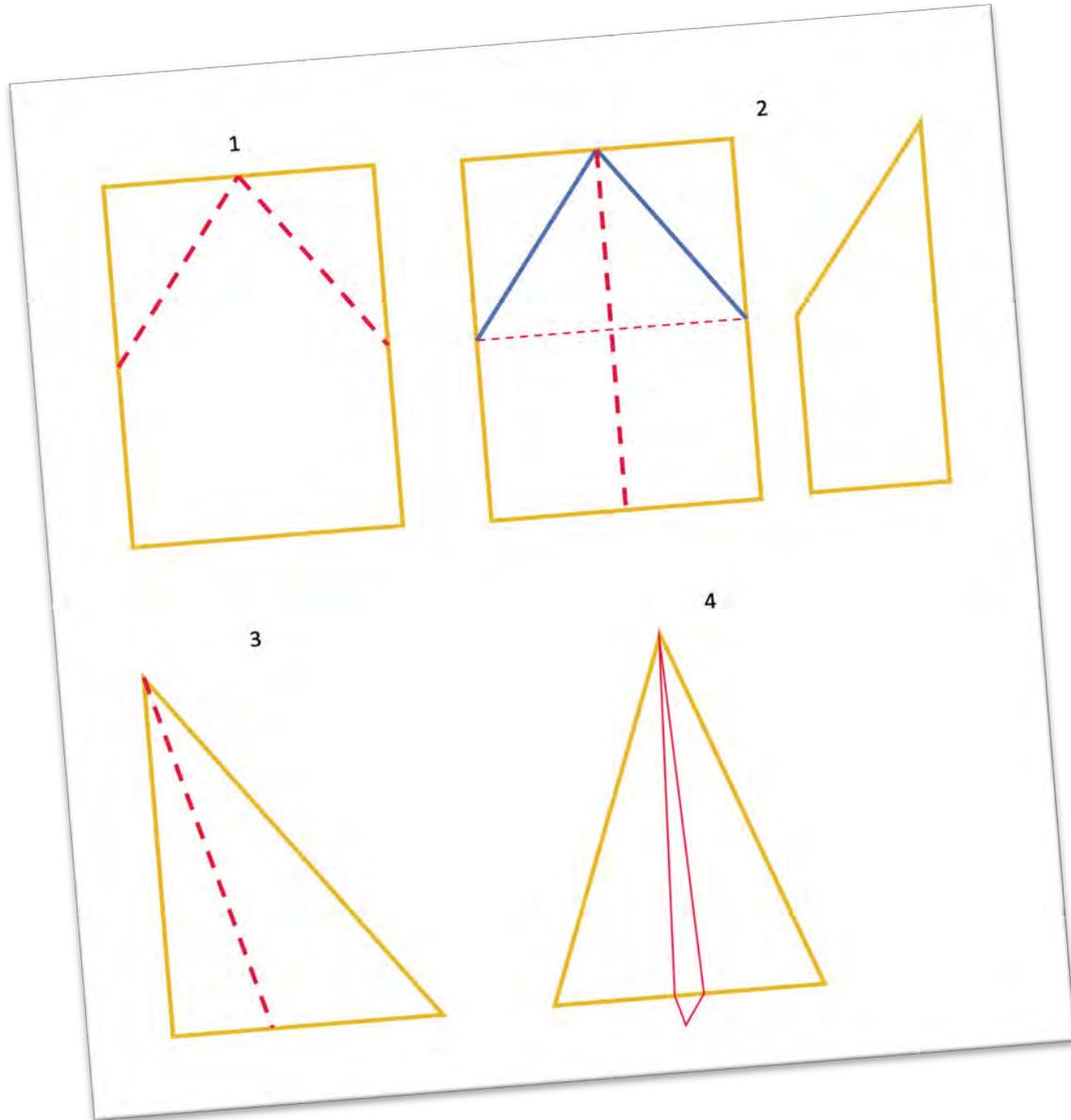
Cover, True Comics, "Queen of the Hurricanes, E..." (January 1942)  
Canada Aviation and Space Museum

HOW A WOMAN CONQUERED TERRIBLE HANDICAPS AND BECAME CHIEF ENGINEER OF CANADA'S GREAT HURRICANE FIGHTER PLANE FACTORY.



### Activity 3

# Make a Paper Plane



Design and make your own paper aeroplane. Try out different designs to see which fly further. Feel free to add color to your design using pencils or paints. See what impact any modifications you make has its flight.

### Extra Challenge

Create a plan to mass produce your plane, so that you could make 1,000 paper planes in a week.

How would you plan the production with your friends? Think about the challenges faced by Elsie MacGill during the Hawker Hurricane production. What considerations did she have to make and how can you apply these to your production line?

You could consider designing a production line, testing for quality, how the planes could be stored safely and how much they would cost. What other things would you need to think about as well?



[Elsie Muriel Gregory MacGill, chief engineer at Canadian Car and Foundry Co. Ltd.\) Canada Aviation and Space Museum](#)



10 to 15-minute activity



[Ladlestopper](#) [Ladlestopper](#), Anna Gerdén,  
National Museum of Science and Technology

# Focus on Inventions

From enzymes to thermoelectricity, we look at women that changed the world with their inventions.



This activity will take around 45 minutes.

# Four inventors that helped change the world forever



[Asima Chatterjee, Indian Academy of Sciences](#)



[Yvonne Brill Portrait, National Inventors Hall of Fame](#)



[Mildred Dresselhaus, Portrait National Inventors Hall of Fame Museum](#)



[Frances Arnold Portrait, National Inventors Hall of Fame Museum](#)

# Asima Chatterjee

23 Sep 1917 – 22 Nov 2006

Professor Asima Chatterjee was a chemist from Calcutta India whose work focused on the areas of organic chemistry and phytomedicine (the use of plants and herbs for medicinal purposes.)

Her research into the properties of plants and their medicinal qualities was vital to the development of anti-malarial and anti-epilepsy drugs. She also worked to develop drugs that would delay the growth of cancer cells.

Chatterjee was encouraged to take an academic study route by her father, who was a medical doctor. At the University of Calcutta, she studied chemistry as an undergraduate and organic chemistry for her master's degree. She then went on to study for her doctorate degree, where her research focused on plant-based and synthetic organic chemistry. She was the first woman to be awarded a PhD in science by an Indian university.

Research was often under difficult circumstances. There was limited funding for research in her field at the time and the laboratories often lacked necessary equipment for testing and analysis. Despite this, she was a prolific researcher who published over 400 research papers in scientific journals during her career.

As well as holding several prominent positions at the University of Calcutta, including the Khaira Professorship of Chemistry, Chatterjee was the first female scientist to be elected as General President of the Indian Science Congress Association.

[Learn more about the life and work of Asima Chatterjee](#)



# Yvonne Brill

30 Dec 1924 – 27 Mar 2013

Yvonne Brill was a Canadian-American rocket and jet propulsion engineer. She is responsible for inventing the rocket thruster that keeps all satellites in orbit. During her career she was involved in a range of US national space programs and the International Maritime Satellite Organization.

Brill's work as a rocket engineer resulted in several significant developments. She developed the fuel-efficient hydrazine resistojet, a new rocket engine (see picture on the left.)

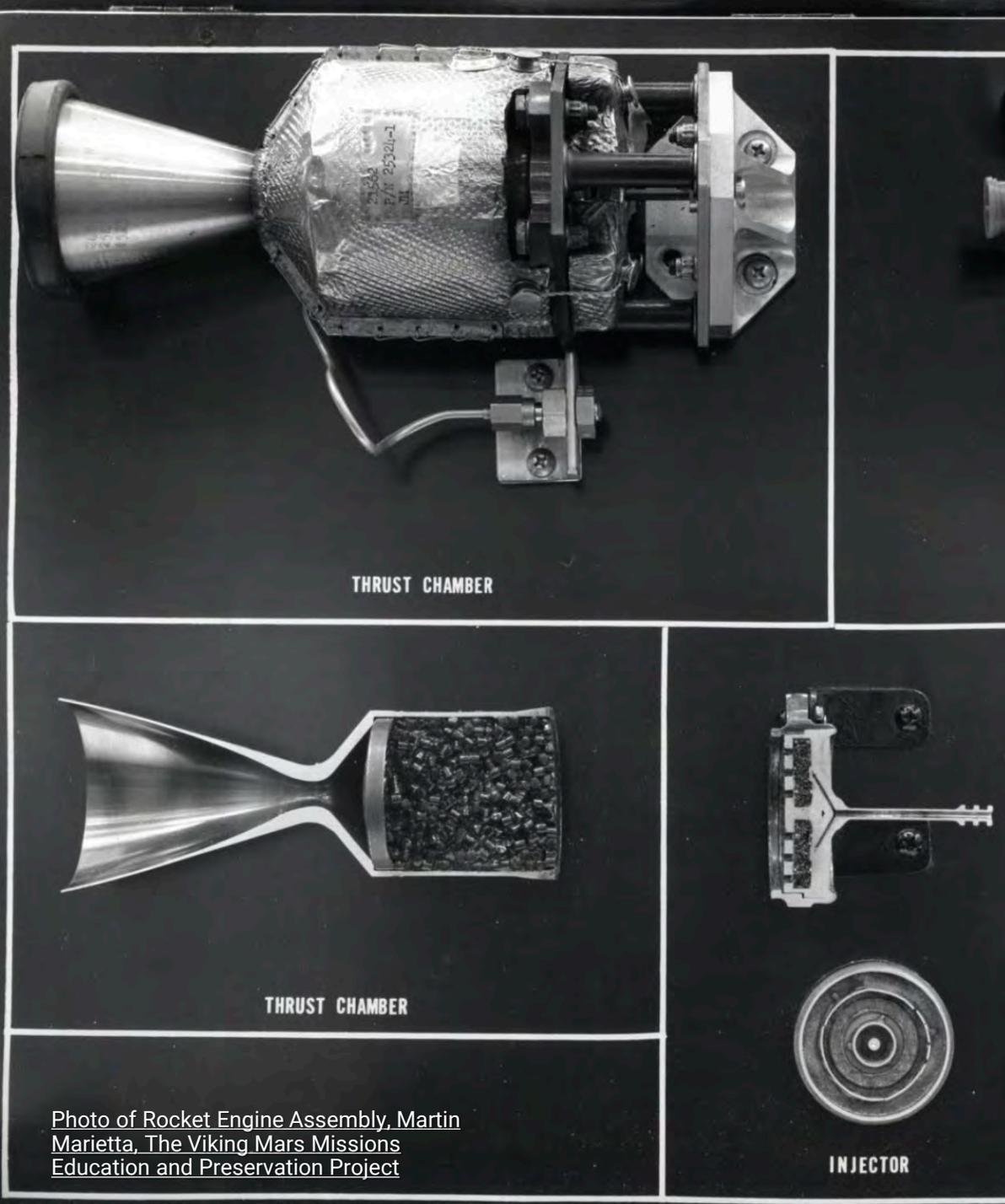
Brill also proposed the use of a single propellant, a simpler and lower cost solution compared to the system used at the time. This helped improve the reliability of a jet propulsion system. It also allowed for a larger payload and has become the standard in the satellite industry.

She worked extensively in the field of satellites, including the [Mars Observer](#) and [TIROS](#), the first weather satellite.

Brill was a passionate supporter of women in STEM education and careers. In 2008, along with her daughter, she endowed the Brill Family Scholarship for undergraduate engineers through the Society of Women Engineers.



[Yvonne Brill - 2010 National Medal of Technology & Innovation](#)



THRUST CHAMBER

THRUST CHAMBER

INJECTOR

Photo of Rocket Engine Assembly, Martin Marietta, The Viking Mars Missions Education and Preservation Project



## Activity 4

# Create a 'Top Trump' card



Create a Top Trumps card of one of the inventors you have learned about.



Use your knowledge to give them a score from 1-100 in each of the key areas, then revisit your research to add some interesting facts about the person.



[Launch of the shuttle Challenger beginning of the STS 61-A mission, 1985-10-30, NASA](#)

### Extra Challenge

Create your personal set of Top Trumps cards for women scientists. Carefully consider your scores for **Intelligence**, **Influence**, **Importance** and **Inventiveness**.

Feel free to carry out extra research to help you determine who you want to include in your set of cards.

**Yvonne Brill**  
*Space rocket engineer*



Intelligence	/100
Importance	/100
Influence	/100
Inventiveness	/100

**Yvonne Brill**

Year of birth

Did you know:

You can use the template above or create your own but be creative and draw a picture to represent your chosen scientist.

[Card game: Top Trumps Dinosaurs](#)  
[Winning Moves2011](#)  
[The Strong National Museum of Play](#)



15 to 20-minute activity

# Mildred Dresselhaus

11 Nov 1930–20 Feb 2017

Mildred Dresselhaus was known as the “queen of carbon science.” She was a nanotechnologist, someone who creates new materials by manipulating matter at one billionth of a meter. Dresselhaus became Institute Professor and Professor Emerita of Physics and Electrical Engineering at the Massachusetts Institute of Technology (MIT). She won numerous awards, including the Presidential Medal of Freedom and the National Medal of Science.

Dresselhaus enjoyed a 57-year career at MIT. Her work included making significant innovations, and she held many patents (an example is on the diagram on the right). These included some based around carbon nanotubes, tiny tubes made of carbon that can be used to conduct electricity. She had several physical theories named after her. One being the Dresselhaus Effect, a phenomenon found in solid-state physics.

In honor of her legacy, the American Physical Society created the Millie Dresselhaus Fund to support and empower more women in Physics.



[Mildred Dresselhaus - National Inventors Halls of Fame](#)



[Carbon Nanotubes, NASA](#)  
[Graphene and buckyballs](#)  
[Buckyballs](#)

(12) **United States Patent** (10) **Patent No.:** **US 7,465,871 B2**  
**Chen et al.** (45) **Date of Patent:** **Dec. 16, 2008**

		FOREIGN PATENT DOCUMENTS	
(54)	<b>NANOCOMPOSITES WITH HIGH THERMOELECTRIC FIGURES OF MERIT</b>	DE	19627389 1/1997
(75)	Inventors: <b>Gang Chen</b> , Carlisle, MA (US); <b>Zhifeng Ren</b> , Newton, MA (US); <b>Mildred Dresselhaus</b> , Arlington, MA (US)	EP	1187230 3/2002
		JP	9-25526 1/1997
		JP	2003-351600 1/1999
		WO	WO 00/12600 3/2000
(73)	Assignees: <b>Massachusetts Institute of Technology</b> , Cambridge, MA (US); <b>The Trustees of Boston College</b> , Chestnut Hill, MA (US)	WO	WO/2004/055912 7/2004
		WO	WO-2004055912 7/2004

(\*). Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/977,363**

(22) Filed: **Oct. 29, 2004**

(65) **Prior Publication Data**  
 US 2006/0102224 A1 May 18, 2006

(51) **Int. Cl.**  
**H01L 35/12** (2006.01)

(52) **U.S. Cl.** ..... **136/236.1; 136/238; 136/239; 136/240**

(58) **Field of Classification Search** ..... **136/236.1; 136/238; 239; 240**  
 See application file for complete search history.

(56) **References Cited**  
 U.S. PATENT DOCUMENTS

4,588,520 A	5/1986	Jayadev
5,246,504 A	9/1993	Ohna
5,318,743 A	6/1994	Iokini
5,531,936 A	7/1996	Kanatzidis et al.
5,614,128 A	3/1997	Kanatzidis et al.
5,618,471 A	4/1997	Kanatzidis et al.
5,723,799 A	3/1998	Murayama et al.
5,763,293 A	6/1998	Yamashita et al.
5,883,563 A	3/1999	Horio et al.
5,897,945 A	4/1999	Lieber et al.
5,929,351 A	7/1999	Kusakabe

(Continued)

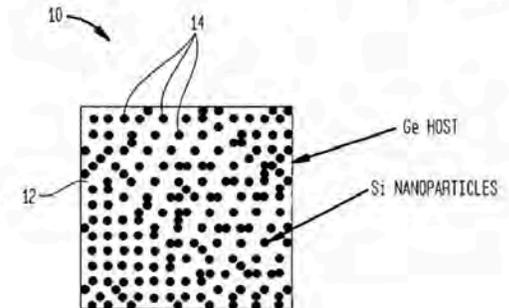
**OTHER PUBLICATIONS**  
 J.M. Essick et al. "Conduction- and valence-band offsets at the hydrogenated amorphous silicon-carbon/crystalline silicon interface via capacitance technique" Phys. Rev. B. 54, 4885-4890. (1996) \*

(Continued)  
**Primary Examiner**—Nam X Nguyen  
**Assistant Examiner**—Jeffrey T Barton  
 (74) **Attorney, Agent, or Firm**—Nutter McClenahan & Fish LLP; Thomas J. Engellemer; Reza Mollaahababa

(57) **ABSTRACT**

The present invention is generally directed to nanocomposite thermoelectric materials that exhibit enhanced thermoelectric properties. The nanocomposite materials include two or more components, with at least one of the components forming nano-sized structures within the composite material. The components are chosen such that thermal conductivity of the composite is decreased without substantially diminishing the composite's electrical conductivity. Suitable component materials exhibit similar electronic band structures. For example, a band-edge gap between at least one of a conduction band or a valence band of one component material and a corresponding band of the other component material at interfaces between the components can be less than about  $5k_B T$ , wherein  $k_B$  is the Boltzman constant and T is an average temperature of said nanocomposite composition.

**116 Claims, 8 Drawing Sheets**





# Frances Hamilton Arnold

Born 25 Jul 1956

Professor Frances Arnold is the first U.S. woman to win a Nobel Prize in chemistry. Working at California Institute of Technology (Caltech), she pioneered “directed evolution,” a method to produce new enzymes—the proteins that drive chemical reactions. Her enzymes help to make renewable fuels or treat chemical spills.

Arnold produced an original work in 1993, which helped change how enzymes can be used in various ways. One of which is as environmentally-friendly alternatives to some industrial chemical procedures. This has involved reducing the need for hazardous heavy metals in certain areas.

At Caltech, she runs a laboratory to study many areas, including a green/alternative energy solution. Her pioneering research has practical applications in the pharmaceutical, chemical, and biofuel industries. She has appeared in an episode of the TV series *'The Big Bang Theory'*, portraying herself.

If you click the link below, you will learn more about an interesting NASA experiment to explore reducing aircraft emissions by testing different types of 'greener' fuels.



[NASA Experiment - Exploring 'greener' fuels for aircraft](#)

## Activity 5

# Write a news article on these inventors



Conduct more research into these inspirational women and produce a newspaper article about their achievements.



Come up with a suitable title, subtitle, and write 100-200 words about them and the impact their inventions have had on the world.

When writing for newspapers, the information is presented concisely and clearly. In an article you have a limited number of words you can use.

One of the hardest parts of writing in this style is thinking about a suitable title; it has to be short (5-8 words) and must convey a message. It must also be eye-catching to encourage people to read your article. You may have to produce multiple ideas before you get the right one.

A subtitle can be used provide your title with a bit more detail. This is a valuable tool if you have had to be creative with your main title and missed a keyword or item out.

You can type your article in a word processor or write it out in a notebook or on paper.



AUGUST 2, 2020



The San Diego

# Union-Tribune



SUNDAY

## MUSEUM OF MAN RENAMED TO SHIFT FOCUS

Balboa Park institution looks to transform, now called Museum of Us

BY JOHN WILKENS

The San Diego Museum of Man in Balboa Park has a new name: Museum of Us.

The shift is timely, given the nation's unfolding social-justice reckoning, but it was years in the making. It is both an admission that the old title had a gender problem, and a reflection of a broader effort by the cultural anthropology museum to redefine its role in the community: its stewardship of the items in its collection, and the stories it tells.

"Change is hard and change is messy," said Meah Parzen, the museum's CEO, "but it can be transformational, too. That's what we're aiming for."

The museum, which got its start as an exhibit at the 1915 Panama-California Exposition and is housed in the park's most iconic building, is known to generations of San Diego school children as the place where they went to look at skeletons and shrunken heads. Before the COVID-19 pandemic, it was drawing about 300,000 visitors annually.

For several years now, it's been moving away from glass-case displays that reduce "ancient civilizations" to their bodies and belongings. Its mission now — "inspiring human connections by exploring the human experience" — is centered on universal themes, not things. On community conversations, not academic authority.

Part of that evolution stems from a desire to remain relevant, especially among experience-hungry young people — a goal common to museums of all types and sizes.

It also comes after considerable soul-searching about how the facility obtained its collection, how over the years it controlled not just possession of the objects but the narrative surrounding them, and how all that contributed to the marginalization of indigenous people, in-

THE MUSEUM • A14



The San Ysidro border area has been one of the top ZIP codes for coronavirus cases since the pandemic began in San Diego County, such as those that are heavily Latino, have been disproportionately affected by infection.

### IN DEPTH

## County targets message in virus-heavy ZIP codes

Groups, leaders trusted in communities tapped to broaden reach of information

BY PAUL SISSON

For the past three months, the novel coronavirus has hit the people living in a handful of San Diego County ZIP codes the hardest, a trend that has generated increasingly forceful cries for help.

Whether it's 92154 and 92173 in Otay Mesa and San Ysidro, 91977 and 92020 in Spring Valley and El

Cajon or 91911 and 91919 in Chula Vista, many have watched the numbers rise disproportionately in the region's most diverse communities. With no vaccine likely this year, many are asking the same question: How will we cool San Diego County's COVID-19 hot spots?

It is clear that hot weather is not going to do it. As temperatures

soared over the weekend, cases continued to arrive, with 229 additional cases and four additional deaths reported Saturday.

While the number of cases recorded in the region's 10 hardest-hit ZIP codes is not growing as quickly as it was in late April and early May, totals nonetheless climbed at rates from 69 percent to 92 percent in July despite an increased focus on testing and community outreach.

Regardless if it's 91911 and 91919 in Chula Vista, 92121 and 91950 in Logan Heights and National City

or 92114 and 92116 in City Heights, new weekly burn on the

collaboration. However, approach is and none what part lives in, most off the ground getting fast this fall level of action.

To be su

## COVID-19 IS REWRITING EMPLOYMENT

Experts say hundreds of labor lawsuits already

out of her apartment. The cost of 100-time childcare would have exceeded her wages, she said. Lege-

MORE COVERAGE INSIDE  
AR - Southern California

said out." She was zooming.



## Want to Learn More?



Now you've completed this lesson you may want to continue to find out more about Female Pioneers in Science. [This](#) is a good starting point to find out more and has a lot of information about famous scientists and their work. To find out more about women in science, [here](#) is a link to Indian scientists. [This](#) is a link to some innovative people and their inventions.