Women in Science

English S6 2021-22

By the end of this course, you will:

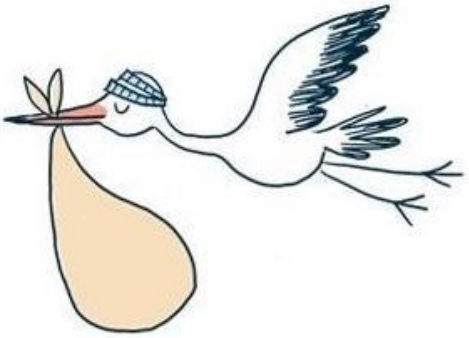
- Be able to identify more women scientists than you can now!
- Know a bit more about the history of women in science.
- Understand some of the reasons why there are so few women in science today.
- Be able to spot sexism in science more easily and be able to name it.
- Have improved your pronunciation (esp. word stress).

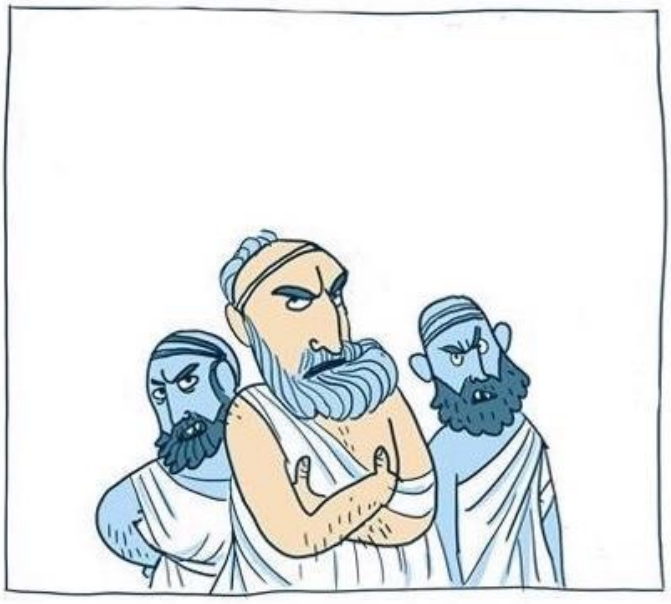
EVALUATION

- **ORAL EXPRESSION** (a group presentation, max 4 students per group, 5 minutes per student)
- **WRITTEN EXPRESSION** (a poster — a written summary of your presentation to be handed in on the last lesson. Use slides for presentation, do not present your poster. 300 words minimum in YOUR OWN ENGLISH)
- **LISTENING COMPREHENSION**: in the last lesson, 10 MCQs (1 of 3 videos — links on AMeTICE)
- **READING COMPREHENSION**: x1 or x2 depending on your degree:
    - RC 1: Ben Barres, *Does Gender Matter?* (30 MCQ) (PDF on AMeTICE)
    - RC 2: unseen text (20 MCQ)

* NB: the specific percentages for each element will depend on your degree

AGNODICE






UNIVERSIT


Pénélope

LISTENING COMPREHENSION: How did Greek Influence English?

https://www.youtube.com/watch?v=EH3lD-L85Is
Start → 6:36

1. What are the two estimates for the percentage of Greek words in English? Explain the difference.

1. How did most Greek words enter English?

1. True or false: most Greek words in English already existed in Greek.

1. What is interesting about the words *television, automobile* and *sociology*?

1. What does *bio* mean in Greek?

1. What does *micro* mean in Greek?

1. How are Latin and Greek words used differently in the field of medicine?

1. What are the 4 hints for recognising Greek vocabulary?

1. How do English speakers pronounce these consonant clusters?

READING COMPREHENSION: Hypatia, Ancient Alexandria's Great Female Scholar

An avowed paganist in a time of religious strife, Hypatia was also one of the first women to study math, astronomy and philosophy

One day on the streets of Alexandria, Egypt, in the year 415 or 416, a mob of Christian zealots led by Peter the Lector accosted a woman's carriage and dragged her from it and into a church, where they stripped her and beat her to death with roofing tiles. They then tore her body apart and burned it. Who was this woman and what was her crime? Hypatia was one of the last great thinkers of ancient Alexandria and one of the first women to study and teach mathematics, astronomy and philosophy. Though she is remembered more for her violent death, her dramatic life is a fascinating lens through which we may view the plight of science in an era of religious and sectarian conflict.

Founded by Alexander the Great in 331 B.C., the city of Alexandria quickly grew into a center of culture and learning for the ancient world. At its heart was the museum, a type of university, whose collection of more than a half-million scrolls was housed in the library of Alexandria. Alexandria underwent a slow decline beginning in 48 B.C., when Julius Caesar conquered the city for Rome and accidentally burned down the library. (It was then rebuilt.) By 364, when the Roman Empire split and Alexandria became part of the eastern half, the city was beset by fighting among Christians, Jews and pagans. Further civil wars destroyed much of the library's contents. The last remnants likely disappeared, along with the museum, in 391, when the archbishop Theophilus acted on orders from the Roman emperor to destroy all pagan temples. Theophilus tore down the temple of Serapis, which may have housed the last scrolls, and built a church on the site.

The last known member of the museum was the mathematician and astronomer Theon – Hypatia's father. Some of Theon's writing has survived. His commentary (a copy of a classical work that incorporates explanatory notes) on Euclid's Elements was the only known version of that cardinal work on geometry until the 19th century. But little is known about his and Hypatia's family life. Even Hypatia's date of birth is contested – scholars long held that she was born in 370 but modern historians believe 350 to be more likely. The identity of her mother is a complete mystery, and Hypatia may have had a brother, Epiphanius, though he may have been only Theon's favorite pupil.

Theon taught mathematics and astronomy to his daughter, and she collaborated on some of his commentaries. It is thought that Book III of Theon's version of Ptolemy's Almagest – the treatise that established the Earth-centric model for the universe that wouldn't be overturned until the time of Copernicus and Galileo – was actually the work of Hypatia. She was a mathematician and astronomer in her own right, writing commentaries of her own and teaching a succession of students from her home. Letters from one of these students, Synesius, indicate that these lessons included how to design an astrolabe, a kind of portable astronomical calculator that would be used until the 19th century.

Beyond her father's areas of expertise, Hypatia established herself as a philosopher in what is now known as the Neoplatonic school, a belief system in which everything emanates from the One. (Her student Synesius would become a bishop in the Christian church and incorporate Neoplatonic principles into the doctrine of the Trinity.) Her public lectures were popular and drew crowds. "Donning [the robe of a scholar], the lady made appearances around the center of the city, expounding in public to those willing to listen on Plato or Aristotle," the philosopher Damascius wrote after her death.

Hypatia never married and likely led a celibate life, which possibly was in keeping with Plato's ideas on the abolition of the family system. The Suda lexicon, a 10th-century encyclopedia of the Mediterranean world, describes her as being "exceedingly beautiful and fair of form. . . in speech articulate and logical, in her actions prudent and public-spirited, and the rest of the city gave her suitable welcome and accorded her special respect." Her admirers included Alexandria's governor, Orestes. Her association with him would eventually lead to her death.

Theophilus, the archbishop who destroyed the last of Alexandria's great Library, was succeeded in 412 by his nephew, Cyril, who continued his uncle's tradition of hostilities toward other faiths. (One of his first actions was to close and plunder the churches belonging to the Novatian Christian sect.) With Cyril the head of the main religious body of the city and Orestes in charge of the civil government, a fight began over who controlled Alexandria. Orestes was a Christian, but he did not want to cede power to the church. The struggle for power reached its peak following a massacre of Christians by Jewish extremists, when Cyril led a crowd that expelled all Jews from the city and looted their homes and temples. Orestes protested to the Roman government in Constantinople. When Orestes refused Cyril's attempts at reconciliation, Cyril's monks tried unsuccessfully to assassinate him.

Hypatia, however, was an easier target. She was a pagan who publicly spoke about a non-Christian philosophy, Neoplatonism, and she was less likely to be protected by guards than the now-prepared Orestes. A rumor spread that she was preventing Orestes and Cyril from settling their differences. From there, Peter the Lector and his mob took action and Hypatia met her tragic end. Cyril's role in Hypatia's death has never been clear. "Those whose affiliations lead them to venerate his memory exonerate him; anticlericals and their ilk delight in condemning the man," Michael Deakin wrote in his 2007 book *Hypatia of Alexandria*.

Meanwhile, Hypatia has become a symbol for feminists, a martyr to pagans and atheists and a character in fiction. Voltaire used her to condemn the church and religion. The English clergyman Charles Kingsley made her the subject of a mid-Victorian romance. And she is the heroine, played by Rachel Weisz, in the Spanish movie *Agora*, which was released in 2009. The film tells the fictional story of Hypatia as she struggles to save the library from Christian zealots.

Neither paganism nor scholarship died in Alexandria with Hypatia, but they certainly took a blow. "Almost alone, virtually the last academic, she stood for intellectual values, for rigorous mathematics, ascetic Neoplatonism, the crucial role of the mind, and the voice of

temperance and moderation in civic life," Deakin wrote. She may have been a victim of religious fanaticism, but Hypatia remains an inspiration even in modern times.

1111 words
https://www.smithsonianmag.com/history/hypatia-ancient-alexandrias-great-female-scholar-10942888/

QUESTIONS

VOCABULARY

Find a translation for the words on the left (found in the text).

ENGLISH	FRENCH
avowed (adj)	
strife	
a mob [negative connotations, diff b/w mob / group / crowd]	
a plight	
a scroll	
to be beset by	
to don [quite formal]	
to be willing	
to plunder	
to loot	
an ilk [from Old English *ilca* "the same"	

COMPREHENSION QUESTIONS

1. How did Hypatia die?

2. What was the city of Alexandria well known for in the 4th century BCE?

3. What groups of people were fighting in Alexandria in the 5th century and what effect did it have on learning?

4. Who taught Hypatia?

5. What did Hypatia design?

6. What religion was Hypatia?

7. What is Hypatia's legacy today?

PRONUNCIATION

1. How do you pronounce Ptolemy?

LISTENING COMPREHENSION: The murder of Ancient Alexandria's greatest scholar (5:06)

https://www.youtube.com/watch?v=n1mwZrVJ-TI

1. "She ……. scientific instruments, wrote …… ……. ……... and developed a more efficient method of …… ……."

2. What did Neoplatonists think about mathematics?

3. What branches did they divide maths into?

4. Why did Neoplatonists study maths?

5. What was remarkable about the way Hypatia taught?

6. What did Cyril accuse Hypatia of?

7. What happened in the wake (= just after) of Hypatia's murder?

PHONOLOGY: Greek suffixes that carry the stress on the first syllable of the suffix

	suffix	meaning	examples
1	-iasis		
2	-itis		
3	-osis		
4	-oma		
5	-ology		
6	-rrhoea		
7	-ectomy		

Decompose the following words. What do they mean? Where does the word stress go?

1. Encephalitis
2. Rhinorrhoea
3. Clitoridectomy
4. Dysmenorrhoea
5. Mastectomy
6. Gynaecology

7. Candidiasis
8. Hysterectomy

LISTENING COMPREHENSION: When Midwives Were Considered Witches (3:06)

https://www.youtube.com/watch?v=yJy1BGfqOOA

1. How many times was the *Malleus Maleficarum* reprinted and between which dates?

2. What did the book say that witches worked to do? (1 or 2 out of the 6 examples given)

3. "I find the emphasis on midwives quite interesting because elsewhere in the book, the authors describe how midwives use ……in order to help women with …… problems but if you go to the second section of the book, we learn that midwives were coerced by demons. Now, the form of disputation used in the book relies on …… in order to support current arguments."

4. When did the concepts on which the *Malleus Maleficarum* were based start to be challenged?

READING COMPREHENSION: The astronomer who saved his mother from being burned as a witch

Book reconstructs the extraordinary story of Katharina Kepler, whose celebrated astronomer son abandoned his work to fight her case – and beat the 17th century witch hunters

Chained to the floor of her prison cell for 14 months while the threat of torture hung over her, the six-year ordeal faced by the elderly mother of the astronomer Johannes Kepler after she was put on trial for being a witch has been pieced together by a Cambridge professor.
Ulinka Rublack, professor of early modern history and a fellow of St John's College, Cambridge, worked through piles of documents in Stuttgart about the case of Katharina Kepler, and how her famous son abandoned his work in 1620 to help her. The result is *The Astronomer And The Witch*, from Oxford University Press, and described as the first attempt to provide a full account of Katharina Kepler's case.

"Usually, when we try to find out about historical witchcraft trials there is limited evidence available," said Rublack. "In this case, it was possible to reconstruct the whole story. That means we can use Katharina's case to explore the often overlooked question of how these trials affected individuals and families in sharp focus and harrowing detail."

Caught up in the witch hunt which swept Europe in the 16th and 17th centuries – around 50,000 people are estimated to have been executed as witches between 1500 and 1700 – the widowed Katharina Kepler was first accused by neighbours in her home town of Leonberg in 1615, when she was 68. Rublack writes that Ursula Reinbold, the wife of a glazier who suffered from a chronic illness, accused Kepler of poisoning her; a 12-year-old girl later said that Kepler had hit her arm when passing by, causing pain which increased until the girl was unable to move a finger.

She was also accused, variously, of killing local animals and turning herself into a cat. Her case would last for six years, the last 14 months of which saw her attached with an iron chain to the floor of a prison cell. “She was subjected to the threat of torture,” said Rublack. “She would have been shown the instruments of torture – they would screw thumbs with heavy irons, and sometimes the thumb would come completely off, causing excruciating pain. They would pull people up on a rack into the air. And she would be talked to in very threatening terms, all the time with a clear agenda to get her to confess.”

In 1620, Kepler, the famed astronomer, astrologer and mathematician who discovered that planets move in ellipses, and defined the three laws of planetary motion, moved his family from Linz to southern Germany to lead his mother’s defence. “He takes up the challenge and takes over the trial – he completely changes his life, packs up his own family,” said Rublack, who describes his defence in her book as a “rhetorical masterpiece” which explained away magical illnesses through knowledge of medicine and common sense. “He was very good at spotting inconsistencies, and at dissecting in a very scientific way the accusations,” Rublack said. “So he mounted this very pioneering defence.”

Kepler’s mother was set free in the autumn of 1621, but died just six months after the trial’s close. Rublack said that until now, what exists in English language literature – both biography and fiction – about Katharina Kepler gives the impression that she was, indeed, “witchlike”, which “seems to me clearly wrong”.

After going through “two huge bundles with all the documentation” about her case, she “found a much more normal picture”, Rublack said. “When you go through everything, there is nothing which suggests she was someone who was witchlike,” she said. Her book, she said, is an attempt to address this, as well as to show “what it was like for a family to live through” the six-year trial.
“Johannes Kepler and his mother lived through one of the most epic tragedies in the age of the witch-craze, yet they kept their spirit,” she added. “It is high time to re-evaluate the way in which they have both been portrayed.”

653 words
https://www.theguardian.com/books/2015/oct/21/the-astronomer-and-the-witch-johannes-kepler-mother-katharina-witch-trial

COMPREHENSION QUESTIONS

1. What happened in 1620?

2. How old was Katharina when she was accused and what was her marital status?

3. What were the specific accusations against Katharina?

4. Why was Johannes Kepler famous?

5. How did Johannes Kepler manage to save his mother?

PHONOLOGY

Identify any instances of the following suffixes in the text. Where does the word stress go? Can you spot any patterns?

1. -ic(s)

2. -ian

   -iate

   -ier

   -ion

3. -ity

4. -ible

LISTENING COMPREHENSION: The Scientific Revolution and the Enlightenment Compared

https://www.youtube.com/watch?v=drgsZc8Gjb8

Watch the video and fill in the following table with the main differences between the Scientific Revolution and the Enlightenment:

The Scientific Revolution	The Enlightenment

READING COMPREHENSION: How One Daring Woman Introduced the Idea of Smallpox Inoculation to England

She was young, bright, attractive, rich and in agony. She tossed in her elegant bed, gasping for air, her fever spiking, her skin spattered with a shotgun pattern of deep, suppurating pustules. She was in an itching, inflamed delirium. Her physicians told her husband to prepare for the worst.

Lady Mary Montagu was suffering through smallpox, a.k.a. “the speckled monster,” a disease that in her day — the early 18th century — was the deadliest on earth, eventually wiping out more people than the Black Plague. But today, somehow, it’s gone. There hasn’t been a case of smallpox reported in more than 40 years. And the reason can be traced back to the extraordinary Mary Montagu.

Born in 1689 to a wealthy and literally entitled family (her father was a Duke) Mary was pretty, witty and indulged. Given free run of her family’s huge private library, she taught

herself Latin, corresponded with bishops, charmed her family's social circle, and determined early in life to become that rarity of rarities: a female writer. And she was independent, too. She rejected her father's choice of a husband, eloping instead with a rising politician. She threw herself into London society and began writing poems so bitingly satirical that they sometimes had to be distributed anonymously.

That was when the "small-pox" (as distinct from the great pox, or syphilis) epidemics hit her family. It killed her favorite brother, then two years later attacked her. The disease was wildly infectious and killed one in four of the people who came down with it. The survivors were most often marked for life with deep, pitted scars. Mary threw off her infection and emerged alive. But her once-flawless skin was scarred, her eyelashes were gone and the skin around her eyes would remain red and irritated for the rest of her life.

Only her spirit was intact. A year later, when her husband was called to Constantinople (today's Istanbul) as British Ambassador, she broke with convention by insisting on coming with him and bringing their young son. She turned the long journey into a series of sharp-eyed, evocative letters home, which were later gathered into a volume that became an early classic of travel writing.

Once settled in Turkey, she threw herself into writing about this new world. Among many surprises she noted the beautiful skin of the locals. There was almost no scarring from the pox. When she discovered the surprising reason why, she couldn't wait to put it into a 1717 letter:

> *I am going to tell you a thing, that will make you wish yourself here. The small-pox, so fatal, and so general amongst us, is here entirely harmless. . . . There is a set of old women, who make it their business to perform the operation, every autumn, in the month of September, when the great heat is abated. People send to one another to know if any of their family has a mind to have the small-pox; they make parties for this purpose, and when they are met (commonly fifteen or sixteen together) the old woman comes with a nut-shell full of the matter of the best sort of small-pox, and asks what vein you please to have opened. She immediately rips open that you offer her, with a large needle (which gives you no more pain than a common scratch) and puts into the vein as much matter as can lie upon the head of her needle, and after that, binds up the little wound with a hollow bit of shell . . . .*

She had observed what today we would call an inoculation. Her discovery might have remained nothing more than a footnote except for two things: Mary's 3-year-old son was with her, and her husband had just heard that they were being recalled to England. Her son would be threatened by smallpox. So she made a sudden, secret decision. She arranged a visit by an old woman with a needle and a nut-shell. Thankfully, it all went well. Her son, the first Englishman to undergo smallpox inoculation, would never get the disease. She was determined to bring the technique home with her.

But once back in London, her enthusiasm was met with disdain by the English medical community. The reasons ranged from religious (what could Mohammedans teach

Christians?) to medical (an untrained aristocrat lecturing physicians?) to economic (physicians of the day made a lot of money from useless smallpox treatments) to sexist (a female changing the thinking of men?).

The opposition seemed only to energize Lady Mary. When yet another smallpox epidemic threatened London in 1721, she had her second child, a daughter, inoculated. This time she invited an audience that included the King's own physician. Her daughter breezed through recovery, with every step observed by a stream of visitors. The girl would thrive, later marrying a British Prime Minister. Faced with this public proof of the method's benefits, Mary's friends began asking to have their own children inoculated.

Even Caroline, Princess of Wales, lobbied her father-in-law George I for permission to inoculate her children, the Royal heirs. He told her no, insisting that no grandchildren of his would be endangered until more was known about this strange Eastern medicine. He insisted on tests. The first were on prisoners: Three male and three female inmates of Newgate underwent inoculation before an audience of a couple of dozen scientists and physicians. When they all did well, a second test was run on eleven London orphans. These were Europe's first "clinical trials," as we would call them today, tests of a new drug or medical procedure on groups of humans to see if it is safe and effective.

Two of the King's granddaughters were eventually inoculated (he would still not risk his male line), and with all the publicity the practice began spreading. Lady Mary had won. Her work opened the door, and others followed with improvements. Decades later, for instance, Edward Jenner showed that cowpox could be substituted for the more dangerous smallpox. (The Latin word for cow, *vacca*, gives us the term vaccination.) Jenner achieved all the fame; Lady Mary's efforts, which laid the groundwork for the eventual eradication of the disease in the 1970s, fell into obscurity.

Mary Montagu lived into her early 70s, writing her way to minor fame, traveling widely, hobnobbing with the great minds of her day, fighting off admirers and falling in love with a brilliant Venetian count (for whom she later left her husband). She should also have been lauded as a pioneer of medicine. But her great achievement remained little-known until recently. As the scientist Francis Galton later put it, "In science the credit goes to the man who convinces the world, not to the man to whom the idea first occurs." Nor, he might well have added, "to the Lady."

1153 words
Adapted from Ten Drugs: How Plants, Powders, and Pills Have Shaped the History of Medicine by Thomas Hager (2019).
https://time.com/5542895/mary-montagu-smallpox/

QUESTIONS

VOCABULARY

Find synonyms in the text for the following words / phrases:

	Synonym	Word / phrase in the text
1	To eradicate	
2	Funny / intelligent / sharp	
3	To catch, to be infected with (an illness)	
4	Benign	
5	To do something very easily or confidently / to sail through	
6	To flourish	
7	To petition	
8	At last	
9	To provide the right conditions for	
10	To praise	

COMPREHENSION

1. List the Lady Mary's symptoms when she had smallpox (find synonyms for the terms in the article).

2. What was the nickname for smallpox at that time? Explain why it was called this?

3. Why was smallpox called *small*pox?

4. How dangerous was smallpox?

5. Why was Lady Mary struck by the skin of people in Constantinople?

6. In your own words, describe how inoculation works. What is the difference between inoculation and vaccination?

7. Why didn't people in London listen to Lady Mary?

8. Who were Europe's first "clinical trials" performed on and why?

9. What did the Royal family think about Lady Mary's ideas?

10. Who is best known for reducing smallpox in Europe and why?

READING COMPREHENSION: The forgotten fossil hunter who transformed Britain's Jurassic Coast

Mary Anning and her most important dinosaur finds went unsung, but her legacy now draws travelers to southwest England.

If you had lived in Victorian times, you would have spotted her, perhaps, at the foot of Church Cliff to the east of Lyme Regis, a seaside town on England's southwest coast. She would have had a wicker basket in one hand, a small geologist's hammer in the other, and been dressed in a plaid coat and cape made of heavy wool — it is chilly by the shore. Her small dog, Tray, would have been skittering by her side.

What you might not have known then is that Mary Anning was arguably the greatest fossil hunter of them all, "the princess of paleontology," a contemporary called her. In Victorian England, in an era of amateur scientists, fossil hunters were nearly always men.

Anning was born in Lyme Regis, which sits on one of the great fossil deposits from the Jurassic era. Known as the Jurassic Coast, the 95-mile stretch of red sandstone, shale, and chalk cliffs between Old Harry Rocks in Dorset, and Orcombe Point in Exmouth, is Britain's only natural UNESCO World Heritage site.

"It's the only visible and accessible coast that covers the whole age of the dinosaur," says David Tucker, director of the Lyme Regis Museum. "Think of layers of sedimentary rock laid down in the Triassic, Jurassic, and Cretaceous Ages — like a layer of sponge, cream, and another layer of sponge cake tilting on its side. You are going through 185 million years of history."

Lyme Regis has a literary history, too: Beatrix Potter (*Peter Rabbit*), Henry Fielding (*Tom Jones*), and J.R.R. Tolkien (*Lord of the Rings*) visited this seaside watering hole. In *Persuasion*, Jane Austen describes its "principal street almost hurrying into the water," and the town's "pleasant little bay, which, in the season, is animated with bathing machines" Miss Austen, who came for a stay, might have passed Mary Anning along that street, suggests Tucker.

Then, as now, fossils were the souvenir of choice. Anning, whose family was poor, hunted and sold them to supplement their income — a skill she learned from her father. In 1811, her brother Joseph found a skull protruding from an eroding cliff face. It took months for Mary to carefully uncover a skeleton of the first Ichthyosaurus described as such in London. She was 12 years old. Her other important discoveries include the first complete Plesiosaurus — as well as the complete fossil of a flying reptile, Britain's first Pterodactylus. The majority of her finds ended up in museums like the Natural History Museum in London, but she remained unsung. She found fossils; others got the credit.

An eminent French anatomist unjustly accused her of fraud. “The world has used me so unkindly,” she wrote a friend. “I fear it has made me suspicious of all mankind.” Gideon Mantell, a physician and fossil hunter himself, who visited her “dirty little shop” in 1832, churlishly called her a “prim, pedantic, vinegar looking, thin female.” (Kate Winslet plays Anning in the recent film *Ammonite,* in which Anning falls into a lesbian relationship with Charlotte Murchison, a geologist. The characters were real; the romance, fiction.)

Scientists came and, with a whiff of patronizing amusement, consulted her. “She is a very clever, funny creature,” said an American geologist who met her. Not only did she find fossils, she sketched and studied them. Her work added proof that species can become extinct, helping pave the way for Darwin.

When she died of breast cancer at the age of 47 in 1847, as science historian Hugh Torrens points out, the city seemed to mourn — not for Anning herself but, a notice asserted, for the “serious loss to the town as her presence attracted a large number of distinguished visitors … able to appreciate her genius.”

Late recognition

“She sold what she found. Her fossils are credited to the rich man who donated them to museums, rather than the poor woman that found them. It’s not so much about gender as class. Today, she would be running a department at Oxford or Cambridge,” Tucker says. Still, she was not without recognition, particularly in the last decade of her life. In 1838, the British Association for the Advancement of Science gave her an annuity. In 1846, she was made the first honorary member of the Dorset County Museum. And when she died, her death was noted in the journal of the Geological Society — which would not admit women for another half-century.

The Lyme Regis museum itself sits on the site of Mary’s house and shop, which deteriorated years ago. Her gravestone and a commemorative window can be found in St. Michael’s Parish Church. “But the real monument is going down to the beach in summer and seeing how many kids are there hunting for fossils,” Keith Moore says. Moore, head librarian of the Royal Society, the United Kingdom’s academy of sciences, travels down from London several times a year for a fossil-hunting break. Among his finds: a beautifully preserved ammonite immediately claimed by his sister, and a fossilized fish, bony teeth still in place.

“It’s the excitement of the chase,” he says, “finding something lovely and learning about it afterwards — a cross between stamp collecting and Indiana Jones.”

890 words
https://www.nationalgeographic.com/travel/article/mary-anning-forgotten-fossil-hunter-british-jurassic-coast

VOCABULARY

1. Translate the title and subtitle into French:
The forgotten fossil hunter who transformed Britain's Jurassic Coast.
Mary Anning and her most important dinosaur finds went unsung, but her legacy now draws travelers to southwest England.

2. What is the term we saw last week in the article about Lady Mary Wortley Montagu that means "to pave the way for"?

3. Pick out all the names of dinosaurs in the text (including "dinosaur") and look up their etymology.

COMPREHENSION QUESTIONS

4. What was Mary Anning's nickname?

5. Where is the Jurassic Coast and why is it special?

6. What happened when Mary was 12 years old?

7. Why didn't Mary get the credit for her discoveries?

8. If Mary was alive today, what would she be doing?

GRAMMAR

9. Pick out all the examples you can find of the conditional in the text. What kind of conditionals are they?

LISTENING COMPREHENSION: BMS Talks: Patricia Fara - Survival of the fittest: The life and struggles of Helen Gwynne-Vaughan

Start → 10 mins: https://www.youtube.com/watch?v=jLcd61tVJ2E

1. How does Dr Patricia Fara describe Helen Gwynne-Vaughan?

2. How does Dr Fara pronounce the word "fungi"?

3. What is her book, *A Lab of One's Own*, about?

4. Why does Dr Fara feel a special sense of empathy with Helen Gwynne-Vaughan?

5. Marie Stopes was the first …

6. "A few years later he [Darwin] …… …… …… …… and he did, he published another book called *The Descent of Man* with the subtitle *Selection in Relation to Sex*."

7. What was Darwin's basic argument about women in *The Descent of Man*?

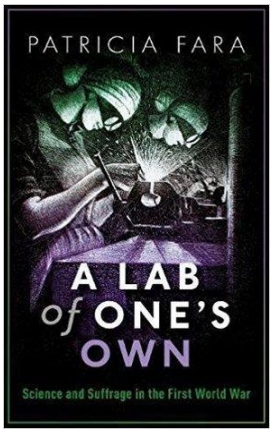
8. How was Darwin's theory of evolution used to justify British imperialism?

9. Who was Francis Galton and what did he think about the role of women?

10. What do the two banners represent?

READING COMPREHENSION: A Lab of One's Own: Science and Suffrage in the First World War by Patricia Fara review – trailblazing feminists

From scientists to weapons testers to doctors – bringing to life the formidable female pioneers who helped win the war and the vote



On 6th February 1918, women working in hospitals, laboratories and universities throughout Britain raised toasts and burst into triumphal song as they celebrated being given the vote. Before the first world war, many of these doctors, scientists and academics had been impassioned suffragists and even militant suffragettes who marched on parliament and smashed windows in support of votes for women. On the outbreak of war they had immediately hung up their banners and laid down their missiles to devote their expertise to fighting the common enemy. The government's decision to award the vote to women over 30 – the rest would have to wait another 10 years – was widely regarded as a reward for women's war work.

Yet in many ways it was a hollow victory, as Patricia Fara's book makes plain. For four years female doctors and scientists dedicated themselves to saving wounded soldiers, leading medical research, developing military technology and designing weapons – taking the places of men who had gone to war – and they revelled in the opportunity. But after the war they were expected meekly to return to their second-rate, lower-paid jobs or simply to devote themselves to domestic chores. Women had helped win the war, many believed, but lost the battle for equality.

Grainy images of women driving ambulances and working in munitions factories in the first world war have become familiar to us all. Yet the remarkable story of the extraordinary women who took over men's jobs in hospitals, laboratories and government research facilities only to be forced to relinquish them once men returned from the front is largely unknown. Patricia Fara's important book, the first of many being published to commemorate the centenary of women receiving the vote, is written as a paean to these forgotten pioneers. Although many of their individual stories remain sketchy, the details of their lives and contributions lost or overlooked, their collective history provides a compelling tale.

Access to education was the key that unlocked potential for many. Previously, scientifically-minded women such as astronomer Caroline Herschel and physicist Hertha Ayrton had propped up the work of brothers or husbands without significant recognition for themselves. The girls' private schools that flourished from the mid-19th century enabled pupils to study sciences for the first time, while the founding of women's colleges at Oxford and Cambridge opened the doors to further studies in maths, medicine and science.

Pursuing these subjects towards potential careers, however, demanded astonishing stamina and pluck. As well as defying opposition from parents, these pioneers had to battle legal and institutional obstacles and popular prejudice. Some of the first female medical students were pelted with mud and offal by their male fellows. Philippa Fawcett, daughter of

suffragist leader Millicent Fawcett, came top in maths at Cambridge but the title of Senior Wrangler went to the best male student; she was styled simply “above Senior Wrangler”.

Yet while education opened the doors, it was the suffrage movement that trained these hardy women to organise, agitate and fight for the right to work on equal terms. Before the war, most medical schools barred women and, although by 1914 there were around 1,000 female doctors, they were almost exclusively confined to treating women and children in hospitals they ran themselves. Likewise, women in scientific fields mainly worked in all-female research units and were paid less. A 1913 civil service report explained that men commanded higher salaries simply because they were “worth more”, being stronger, harder working and possessing sounder judgment.

War changed everything. Just as women took over men’s jobs ploughing fields and driving taxis, so female doctors and scientists replaced men in hospitals, laboratories and government departments. Emptied of young men who had signed up, medical schools and university science departments were suddenly desperate for female students. Catapulted into posts previously confined to men, female scientists now turned their talents to the war effort. Women at Sheffield University developed anaesthetics for the wounded, while at the University of Wales they worked on new drugs and explosives. At Imperial College London, chemist Martha Whiteley headed a mainly female team testing hand grenades and poisonous gases, including the first sample of mustard gas, in experimental trenches.

In the first weeks of war, medical women who offered their services to the War Office were brusquely told to “go home and sit still” but by 1915 they were in high demand. When Florence Stoney, a pioneer in the new field of radiology, offered her mobile X-ray unit to the British army, she was smartly rebuffed so she took her equipment and skills to Serbia instead; yet a year later she was appointed head of radiology at Fulham Military Hospital. Physician Flora Murray and surgeon Louisa Garrett Anderson, both active suffragettes, initially set up a women-run hospital for the wounded in Paris but in early 1915 they were invited by the War Office to run a military hospital in the heart of London. Staffed entirely by women, it treated more than 26,000 wounded.

After the war, most medical schools shut their doors to female students again and women were turfed out of posts in hospitals, laboratories and universities to make way for men returning from the front. In 1917 the Daily Mail admitted that women had proved “we could not carry on the war without them”. But two years later a Ministry of Labour pamphlet called on women to “help renew the homes of England” by cooking, cleaning and rearing babies.

Some medical and scientific women did go on to forge distinguished careers but most had to take low-paid, second-class jobs – which they often had to give up when they married – or retire. The wonder is that they didn’t pick up their stones to smash government windows again. Although Fara spends rather too long setting the scene before bringing her story to life through the voices of these formidable trailblazers, her book charts a significant chapter in lost feminist history.

https://www.theguardian.com/books/2018/jan/03/lab-ones-own-science-suffrage-first-world-war-patricia-fara-review

VOCABULARY

Look up the following words in the text and find synonyms for them:

Word in text	Synonym
Trailblazer	
A hollow victory	
To revel in	
Meekly	
To relinquish	
A paean /ˈpiːən/	
To overlook	
To flourish	
Pluck (adj)	

COMPREHENSION QUESTIONS

1. The title of Patricia Fara's book *A Lab of One's Own*, is a nod to which other book? (Use the internet to find the answer – it is not in the text)

2. Why were some women celebrating on 6th February 1918?

3. Why is getting the vote described as a hollow victory in this article?

4. What changes happened in the mid-19th century that unlocked many women's potential?

5. What happened to some of the first female medical students?

6. Who was Martha Whiteley and what was she doing at Imperial College London?

7. After the war, what did the Ministry of Labour want women to do?

8. Why does the author mention smashing windows at the end of this article?