BECOME AN ASTROPHYSICIST FOR THE WEEK
WITH THE

ZOONIVERSE

GALACTIC EXPLORERS

CHALLENGE

4 – 8
DEC
2023

BROUGHT TO YOU BY
UNIVERSITY OF OXFORD
DEPARTMENT OF PHYSICS

ASTROPHYSICISTS AT THE UNIVERSITY OF OXFORD PHYSICS DEPARTMENT AND ZOONIVERSE NEED YOUR HELP!

THEY HAVE TAKEN LOTS AND LOTS OF IMAGES WITH SPACE TELESCOPES OF FAR AWAY GALAXIES AND DON'T HAVE TIME TO CLASSIFY THEM ALL.

GALAXY ZOO & ZOONIVERSE

SOME SCIENTISTS WANT TO UNDERSTAND MORE ABOUT THE SHAPE OF DIFFERENT GALAXIES.

THEY CREATED A PROJECT CALLED GALAXY ZOO SO THAT CITIZEN SCIENTISTS LIKE YOU CAN HELP WITH THE LARGEST GALAXY CENSUS EVER CARRIED OUT. CITIZEN SCIENTISTS ARE MEMBERS OF THE PUBLIC WHO VOLUNTEER TO HELP SCIENTISTS WITH PROJECTS LIKE THIS ONE.

TO DATE OVER 900,000 GALAXIES HAVE BEEN CLASSIFIED THROUGH GALAXY ZOO. THAT'S A LOT OF GALAXIES!!!

IN THIS COMPETITION, YOU ARE GOING TO USE THE GALAXY ZOO PLATFORM TO HELP CLASSIFY EVEN MORE GALAXIES, BUT FIRST, WE NEED TO LEARN HOW...

WHAT IS A GALAXY?

WHAT IS A GALAXY?

A GALAXY IS A HUGE COLLECTION OF GAS, DUST, AND BILLIONS OF STARS AND THEIR SOLAR SYSTEMS, ALL HELD TOGETHER BY GRAVITY.

GALAXIES SPAN A WIDE RANGE OF SIZES, FROM DWARF GALAXIES CONTAINING AS FEW AS 100 MILLION STARS TO GIANT GALAXIES WITH MORE THAN A TRILLION STARS.

WHAT IS OUR GALAXY CALLED?

TYPES OF GALAXY

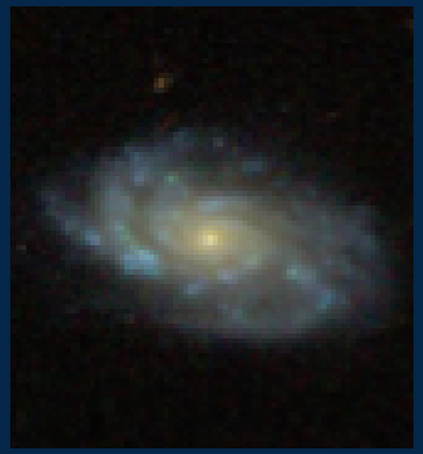
OUR SUN IS IN A SPIRAL GALAXY CALLED THE MILKY WAY.

SOME GALAXIES ARE SPIRAL-SHAPED LIKE OURS.

OTHER GALAXIES ARE SMOOTH AND OVAL-SHAPED. THEY'RE CALLED ELLIPTICAL GALAXIES.

AND THERE ARE ALSO GALAXIES THAT AREN'T SPIRALS OR OVALS. THEY HAVE IRREGULAR SHAPES AND LOOK LIKE BLOBS.

ELLIPTICAL OR SPIRAL?



SPIRAL GALAXIES

- ORBIT AROUND A GALACTIC CENTRE
- HAS ‘ARMS’
- BLUER
- COLD GAS
- LOTS OF DUST

ELLIPTICAL GALAXIES

- ORBIT AROUND A GALACTIC CENTRE
- SMOOTH LOOKING
- REDDER
- HOT GAS
- HARDLY ANY DUST

THE COMPETITION

1. ATTEND AN INTRODUCTORY WEBINAR AND TO MEET ASTROPHYSICIST ALEX AND HAVE YOUR QUESTIONS ANSWERED!

2. CLASSIFY GALAXIES ON THE ZOONIVERSE PLATFORM AND CREATE A SCIENCE COMMUNICATION PROJECT

3. JOIN THE CELEBRATION WEBINAR ON 14 DECEMBER! GET YOUR CERTIFICATES & FIND OUT IF YOU WON A PRIZE!

BRONZE

CLASSIFY AT LEAST 20 GALAXIES FROM OUR SCHOOLS' COLLECTION FOR A BRONZE GALACTIC EXPLORERS CERTIFICATE!

SILVER

KEEP GOING AND CLASSIFY AT LEAST 15 GALAXIES FROM THE MORE CHALLENGING IMAGES IN THE LIVE GALAXY ZOO COLLECTION AND YOU WILL GET A SILVER GALACTIC EXPLORERS CERTIFICATE!

GOLD

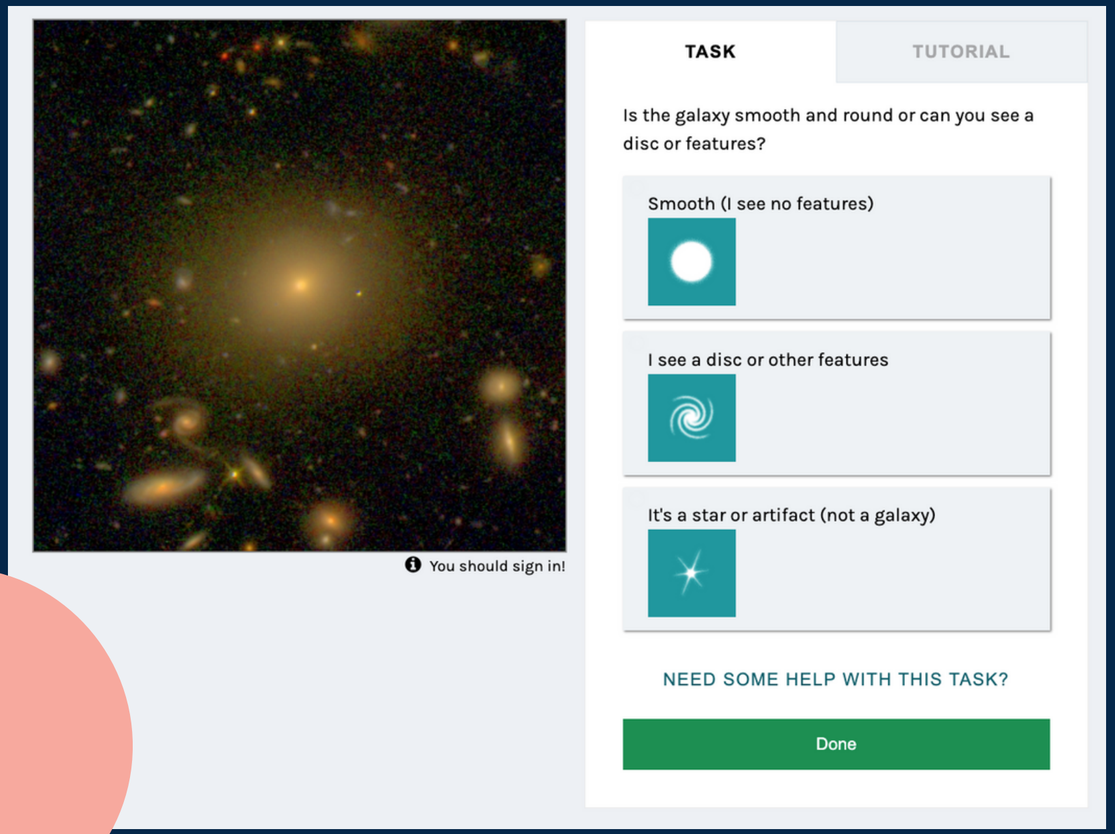
TAKE IT ONE STEP FURTHER AND CREATE YOUR OWN MINI-SCIENCE COMMUNICATION PROJECT FOR A GOLD GALACTIC EXPLORERS CERTIFICATE!

THE BEST 10 PROJECTS WILL WIN A £50 VOUCHER FOR THE SCIENCE MUSEUM SHOP!

GET CLASSIFYING!

IS THIS GALAXY SMOOTH OR DOES IT HAVE FEATURES?

1

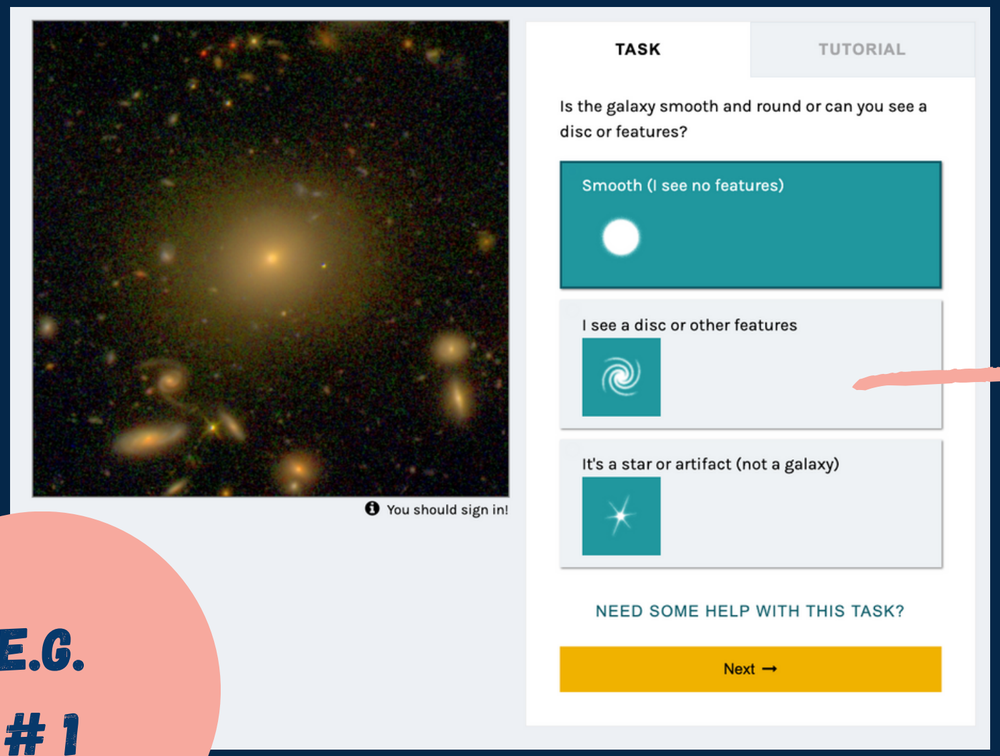


E.G.
#1

GET CLASSIFYING!

IT'S ELLIPTICAL (SMOOTH). HOW ROUNDED IS IT?

1



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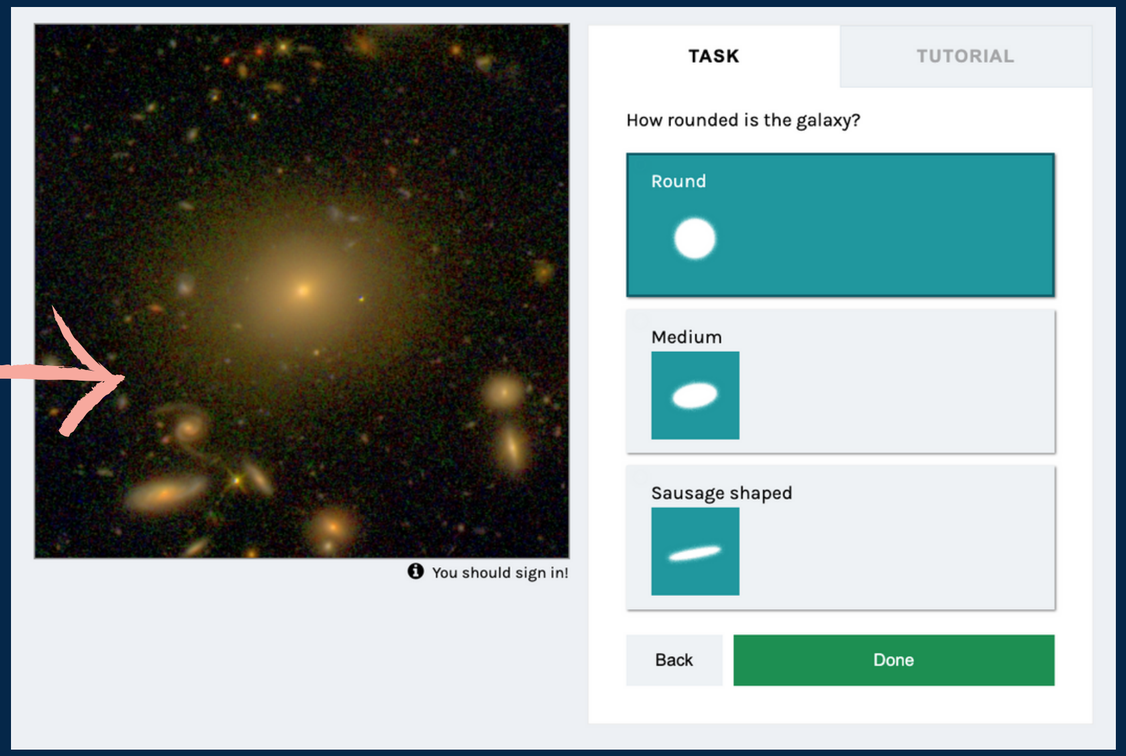
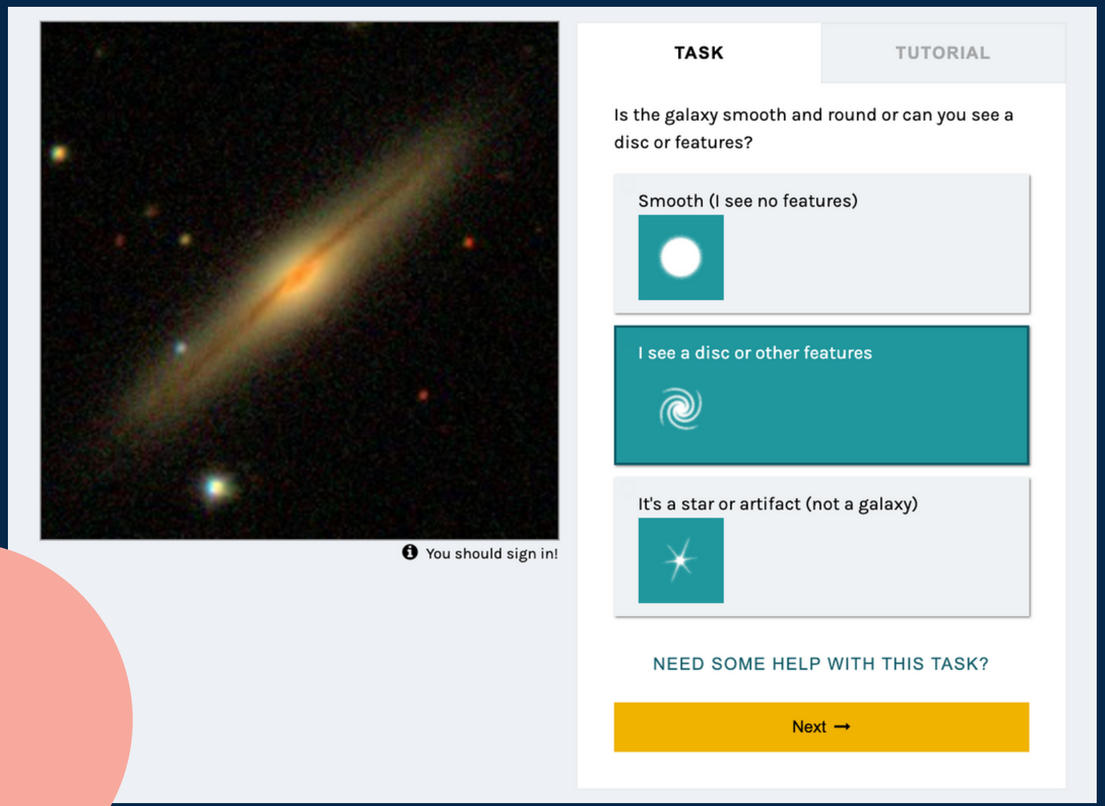


E.G.
1

GET CLASSIFYING!

IS THIS GALAXY SMOOTH OR DOES IT HAVE FEATURES?

1

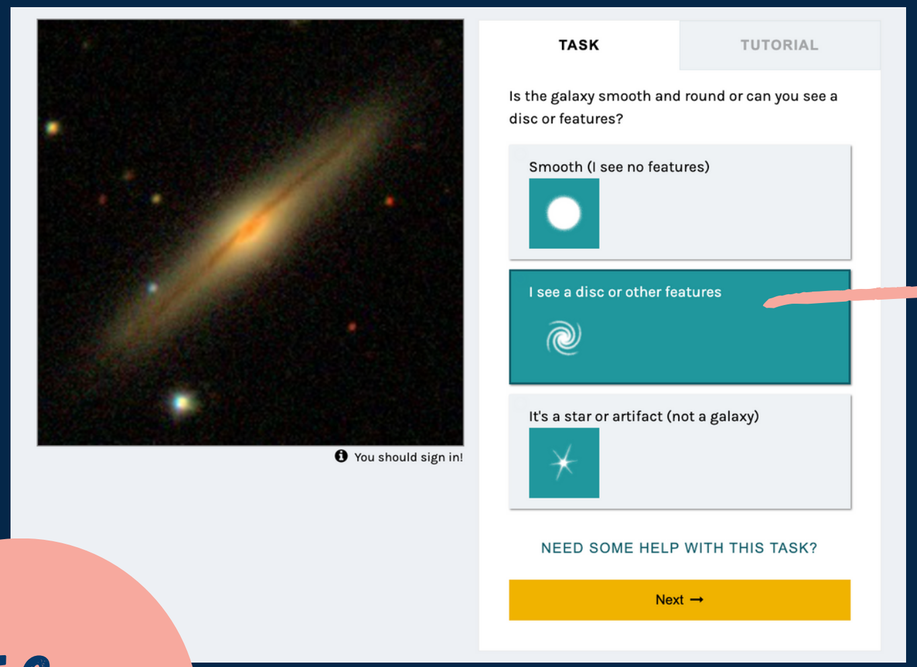


E.G.
2

GET CLASSIFYING!

IT'S A DISC. IT IS ON EDGE?

1



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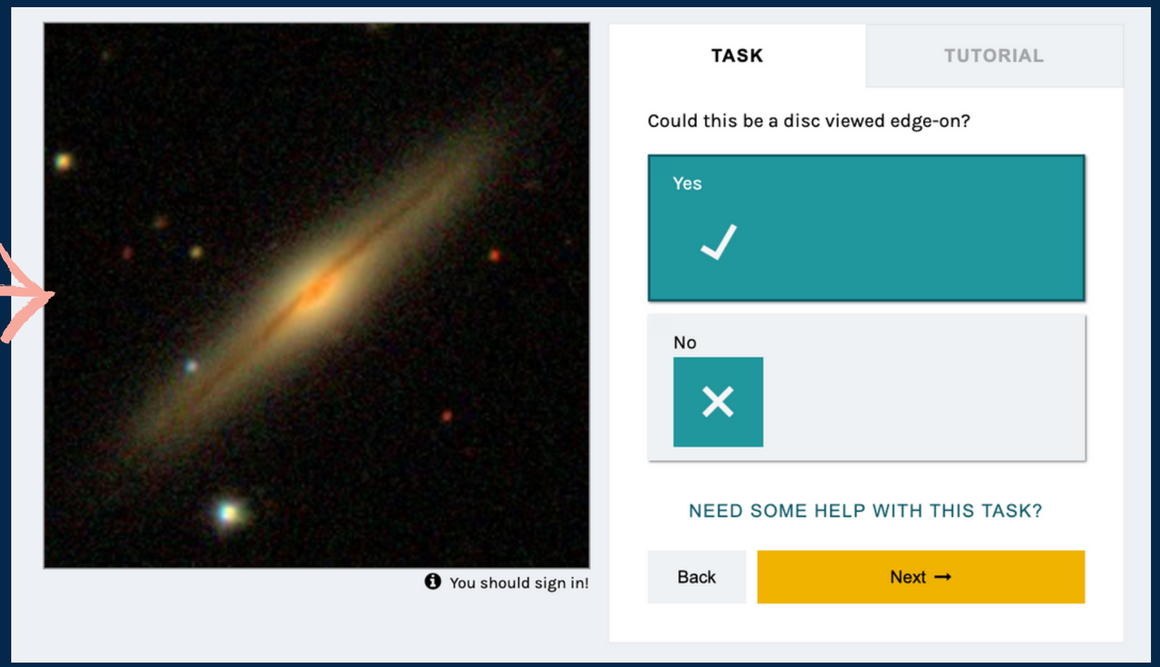

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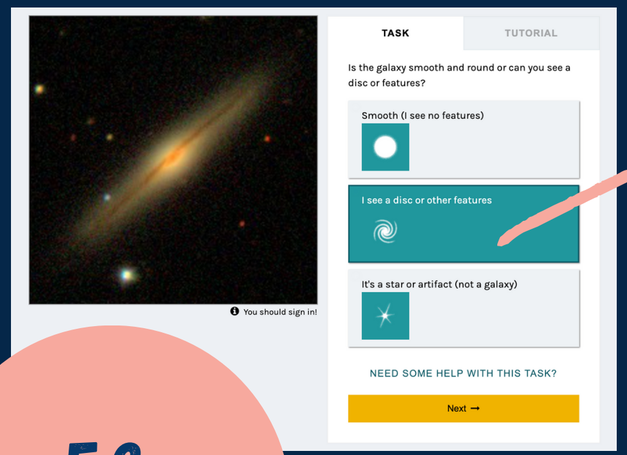
2

GET CLASSIFYING!

DOES IT HAVE A BULDGE?

1



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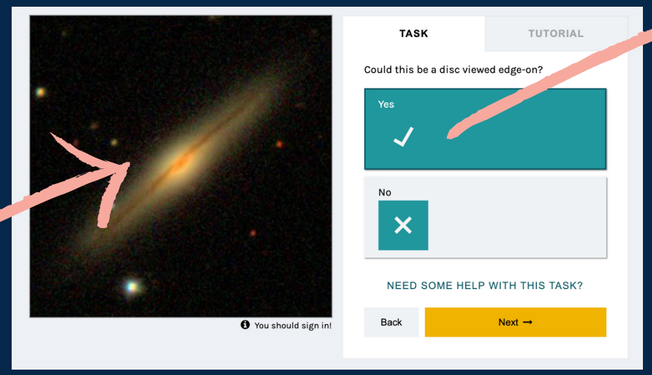

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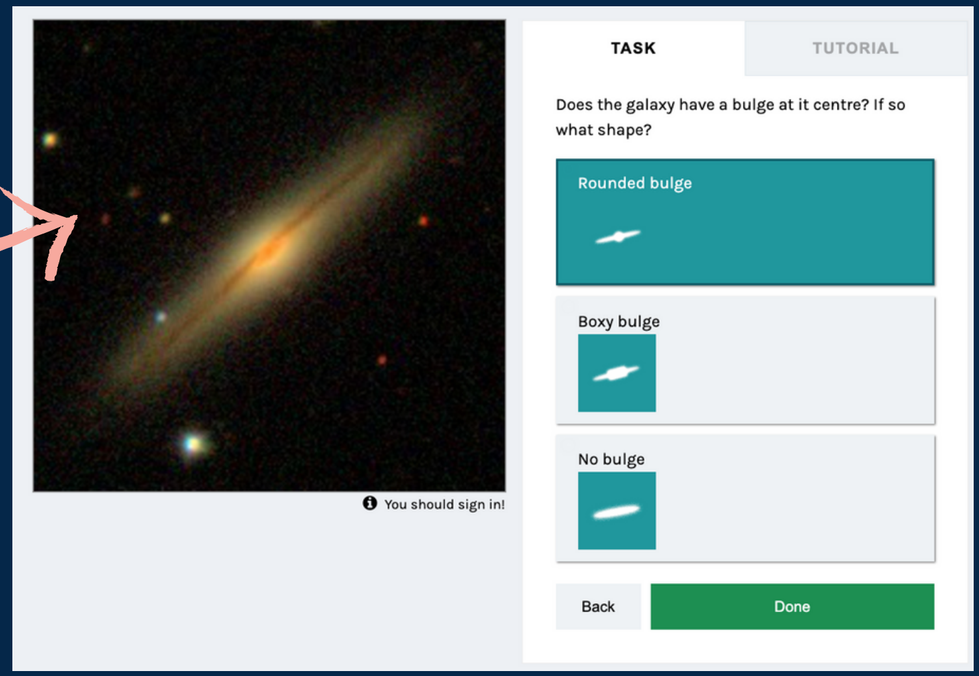

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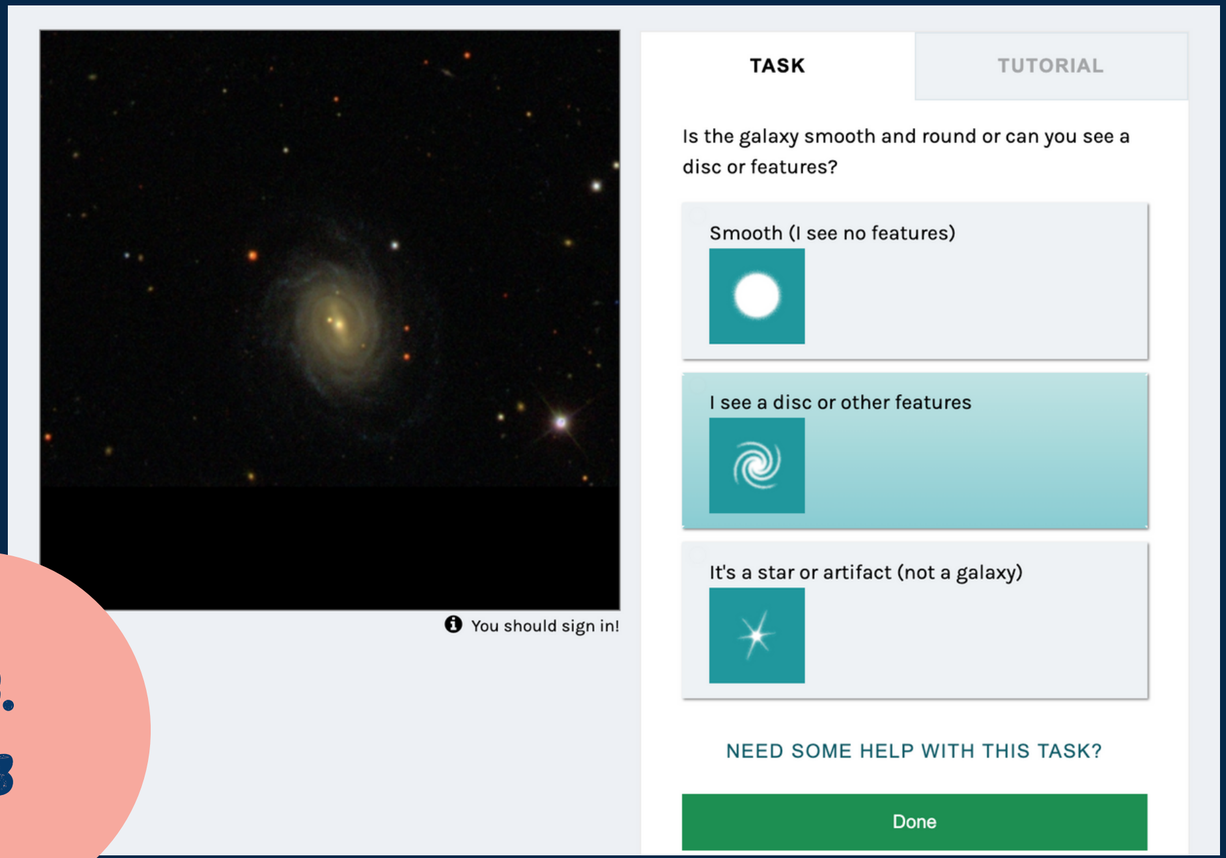
2

GET CLASSIFYING!

IS THIS GALAXY SMOOTH OR DOES IT HAVE FEATURES?

1

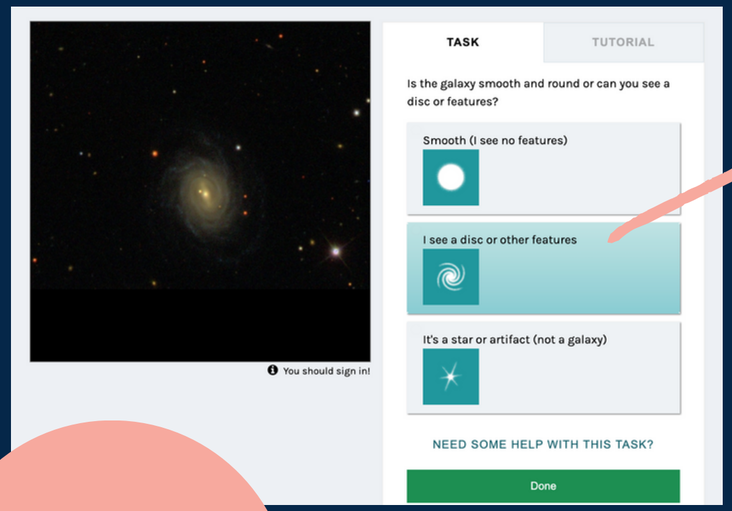


E.G.
3

GET CLASSIFYING!

IT'S NOT A DISC ...

1



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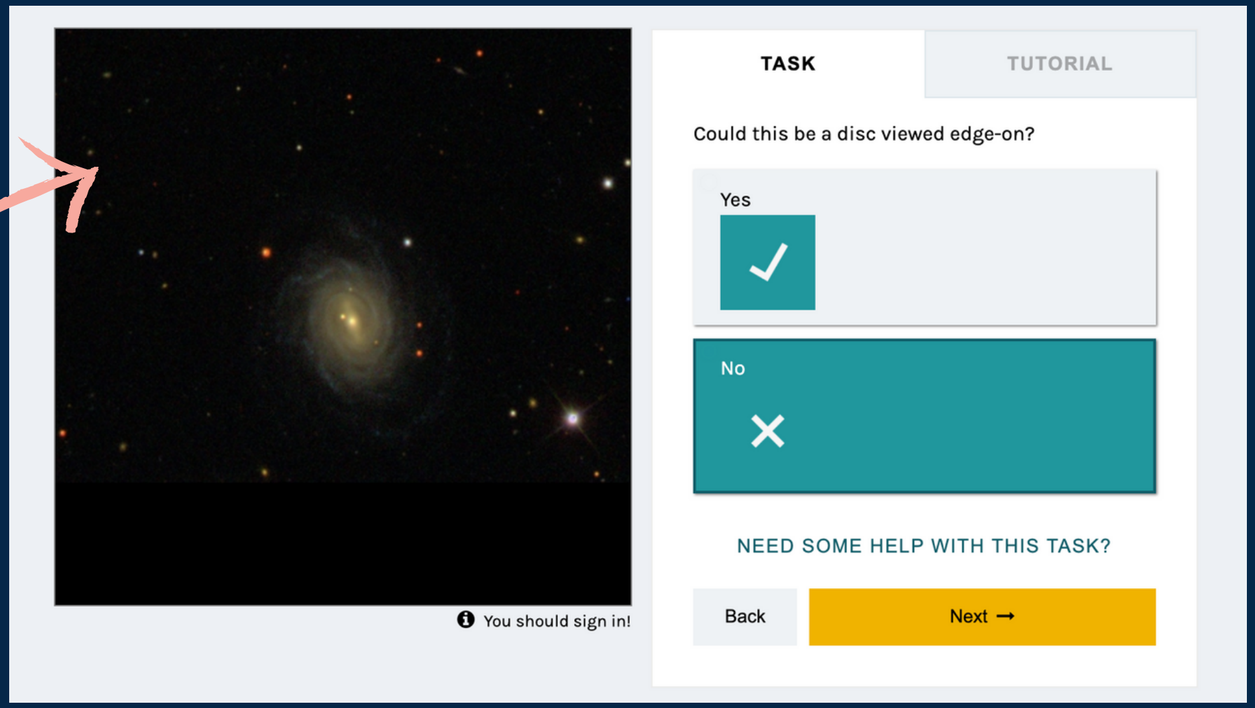


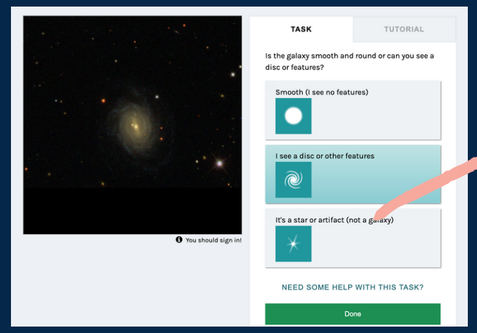
E.G.

3

GET CLASSIFYING!

IT'S A SPIRAL!

1



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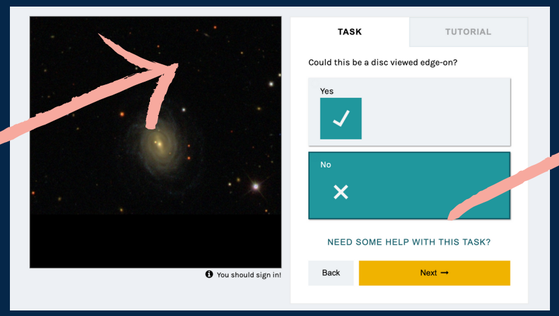

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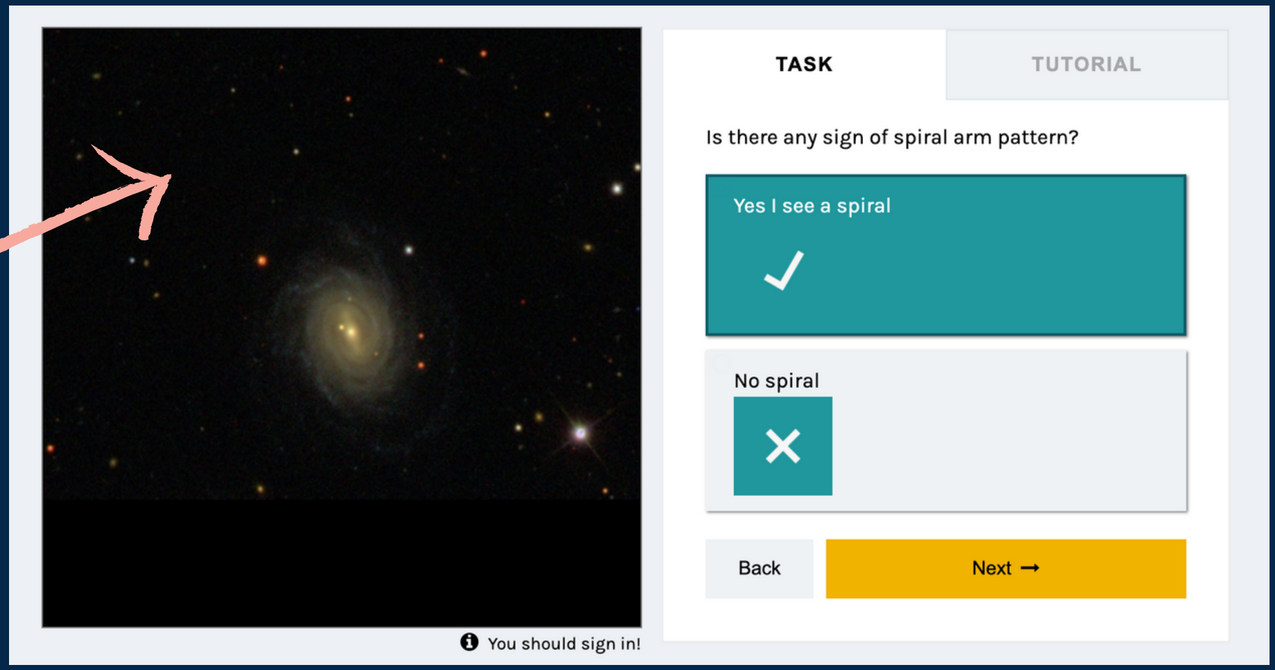


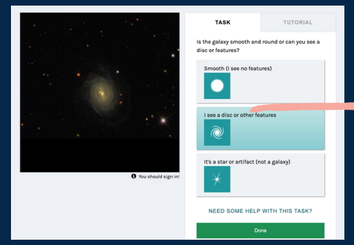
E.G.

3

GET CLASSIFYING!

TELL US MORE ABOUT HOW IT LOOKS

1



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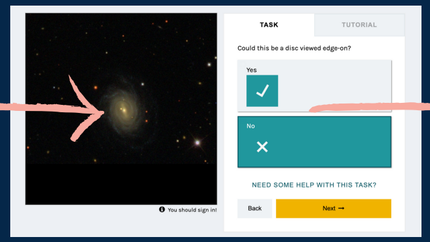

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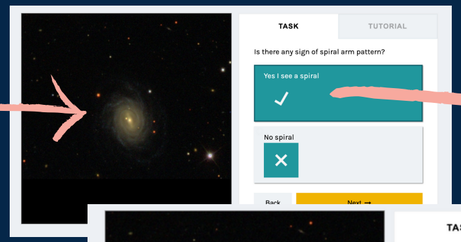

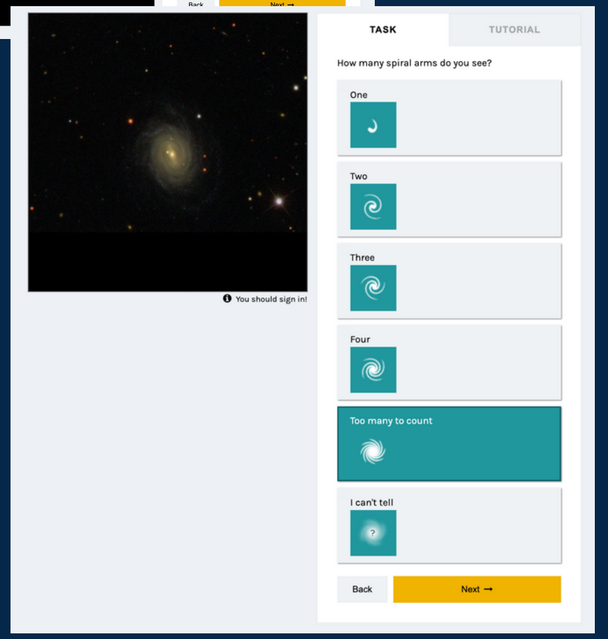

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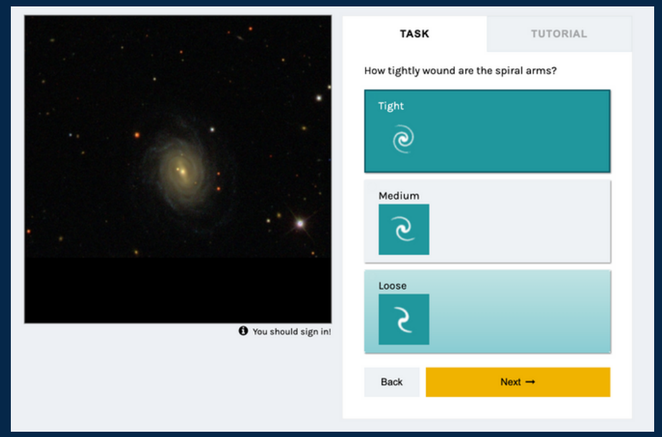
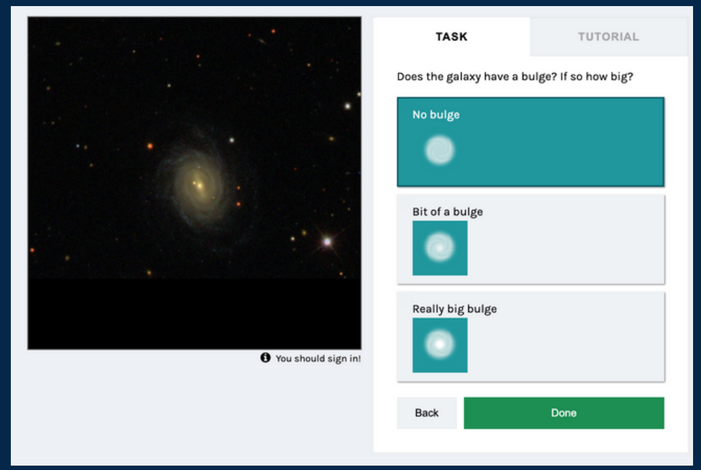




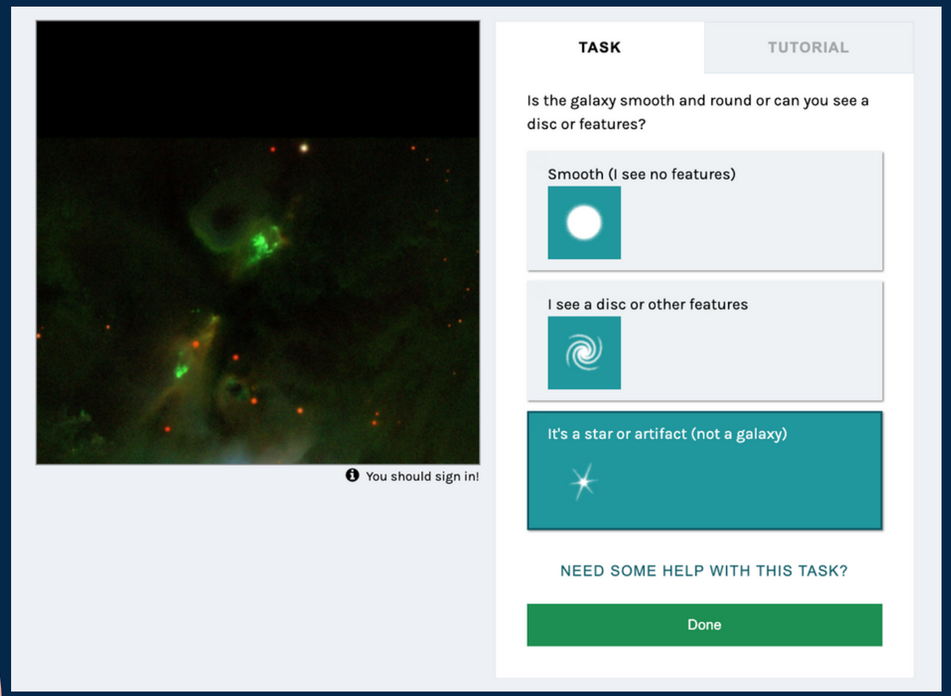
E.G.

3

GET CLASSIFYING!

E.G. NOT A GALAXY

1



E.G.
4

GET CLASSIFYING!

LINKS

HTTPS://BIT.LY/GALACTICBRONZE

HTTPS://BIT.LY/GALACTICSILVER

GOLD ONLY
SCIENCE COMMUNICATION PROJECT

A REALLY IMPORTANT PART OF A SCIENTIST'S JOB IS **COMMUNICATION**. IT'S NO GOOD DOING LOADS OF AMAZING RESEARCH AND THEN NOT TELLING ANYONE ABOUT IT!

THE RESEARCHERS WORKING ON GALAXY ZOO NEED THEIR HELP TO TELL EVERYONE ABOUT **WHAT GALAXIES ARE**, THE DIFFERENT **TYPES OF GALAXIES**, AND THE **GALAXY ZOO PROJECT**.

BE AS **CREATIVE** AS YOU LIKE, YOU COULD MAKE A POSTER, A DRAWING, A POEM OR SONG, A PRESENTATION, OR SOMETHING ELSE COMPLETELY. THE BEST 10 PROJECTS FROM THE COMPETITION WILL WIN A £50 VOUCHER FOR THE SCIENCE MUSEUM ONLINE SHOP!

MEET ASTROPHYSICIST ALEX!

AT THE INTRODUCTORY WEBINAR YOU'LL HAVE A CHANCE TO MEET ALEX. WHAT QUESTIONS WOULD YOU LIKE TO ASK HIM? WRITE THEM DOWN NOW AND YOUR TEACHER CAN SEND THEM IN.

ALEX ANDERSSON (DPHIL STUDENT)

MY MISSION IS TO DISCOVER AND CATEGORIZE MYSTERIOUS RADIO BURSTS CAPTURED BY THE MEERKAT TELESCOPE. I IDENTIFY SOME OF THE EXPLOSIVE, DYNAMIC SYSTEMS THAT UNTIL VERY RECENTLY HAVE ELUDED ASTRONOMERS.

THESE BURSTS HAPPEN SUDDENLY AND DRAMATICALLY, LIKE FIREWORKS IN SPACE, AND I'M ON A QUEST TO UNDERSTAND THEM BETTER WITH THE HELP OF AMAZING TECHNOLOGY LIKE MACHINE LEARNING.