

SCIENCE AWARD TRUST®

Rating	Exercises in Astronomy	Teacher's initials and date	Rating	Exercises in Astronomy	Teacher's initials and date
1*	Explain what black holes are and how they form.		18***	Using a shadow stick in full sun, record the length of its shadow every hour over one day. Write a report explaining what you observe.	
2**	Starting two days after a new moon, and continuing until full moon, make sketches of the phases of the moon. Try to observe at least every second day.		19*	Explain why the Hubble telescope is so important to scientists interested in astronomy?	
3*	Use information from the LINZ astronomical web pages (www.linz.govt.nz/sea/nautical-information/astronomical-information) to find out the times of sunset and moonset for a two week period. Explain the changes you observe.		20**	Make a poster which explains the differences between comets, meteors, asteroids and meteorites.	
4**	Make a brochure to promote Mt. John Observatory in Tekapo, South Island.		21**	Create a graphic organiser of your choice to display basic facts showing similarities and differences between Earth and Mars.	
5*	Draw diagrams showing the difference between reflecting and refracting telescopes.		22***	Record the positions where the sun sets on the horizon over a period of one month. Mark the positions on a map of your horizon and explain your results.	
6*	Sketch and name the constellations that contain the stars Alpha Centauri, Canopus, Achernar and Fomalhaut. Label the 4 stars.		23*	Explain why the sun appears to be moving across the sky during the day.	
7**	Name each of the 8 known planets in the solar system, and describe the main difference between planets and stars. Explain why Pluto no longer qualifies as a planet.		24**	Make drawings of 3 different types of galaxies with an explanation of what each one is.	
8**	Write an explanation of why stars have different colours. Pick and name three stars of different colours and record how hot each one is.		25**	Use the LINZ website (www.linz.govt.nz/sea/tides/tide-predictions) to obtain the times for high and low tides over a month and also the phases of the moon. Explain any relationship you notice between the phases of the Moon and the tides.	
9*	Write short notes on the following: solar system, constellations, star clusters, galaxies, and the universe.		26***	Research how to measure the sun's diameter by using a pinhole in a piece of card, a ruler, the average distance from the Earth to the sun and some simple geometry. Carry out the measurement and compare it with the actual value. Remember never to look directly at the sun.	
10*	Explain why the natural light display known as an Aurora occurs particularly in the Arctic and Antarctic regions.		27*	Write down the meanings of light year, astronomical unit, escape velocity.	
11**	Why are the famous scientists Galileo, Newton, Copernicus and Kepler recognised as famous astronomers?		28***	Find out the distance from the sun for each planet in the solar system. Make a scale model of the solar system in the school playground, using your classmates, or some other markers, as planets. Take a photo of your scale model.	
12**	Present/deliver findings about the mission of one of the planetary space probes e.g. Voyager, using any media.		29***	Construct and correctly orientate a sundial and then use it to measure the time each hour for one day. Record how accurate it is compared with the real time. Explain your results.	
13*	Describe, using a poster, chart or PowerPoint, the life cycle of stars like the sun.		30***	Construct an astrolabe using information you gain from the internet.	
14**	Design and construct a simple apparatus to demonstrate the difference between a solar and a lunar eclipse.		31***	Fill a small bowl with 4 cm of flour. Drop small stones into the flour and record with a photo the shape of the crater that each stone creates. Using measurements, report what happens when you use larger stones or you drop the stones from a greater height.	
15**	Retell in your own words a myth about the stars, constellations or the sky. It can be from any culture.		32***	Make your own telescope from simple materials and measure its magnification. You will need 2 converging (convex) lenses, plus cardboard tubes.	
16**	Design a Maori lunar calendar (He Maramataka Maori) using symbols or graphics to identify the best days for fishing and planting.		33*	Describe a recent astronomical event.	
17*	Explain the significance of the Southern Cross in early Polynesian migration.		34***	Make scale models of the sizes planets of our solar system.	

MATHEMATICS ASTRONOMY

SCIENCE BADGE ACTIVITY SHEET

FURTHER INFORMATION

- The Science Award Badge Scheme was developed to stimulate and maintain interest in science. It is designed for students of all abilities and the activities them-selves do not require specialist equipment.
- Your school science badge co-ordinator will act to set the standard within your school.
- Please remember that this scheme is run as a non-profit scheme by teachers for other teachers and their students.
- Any suggestions for improvement or change would be welcomed.

INSTRUCTIONS

- To qualify for your badge in this activity you must complete exercises that total up to 20 stars.
- When you finish the exercises and your teacher is satisfied with their standard get her/him to initial and date your activity sheet.
- To qualify for a badge return the completed exercises to your teacher. Your teacher will return the completed activity card to your school science award coordinator and you will receive a badge and certificate.

Good luck!

Address all correspondence to:
Science Award Trust
21 Kingrove Street
Christchurch 8053

Name: _____

School: _____

Return this whole card for checking to your school Science Award Co-ordinator.

Teachers Signature: _____ Date: _____



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