

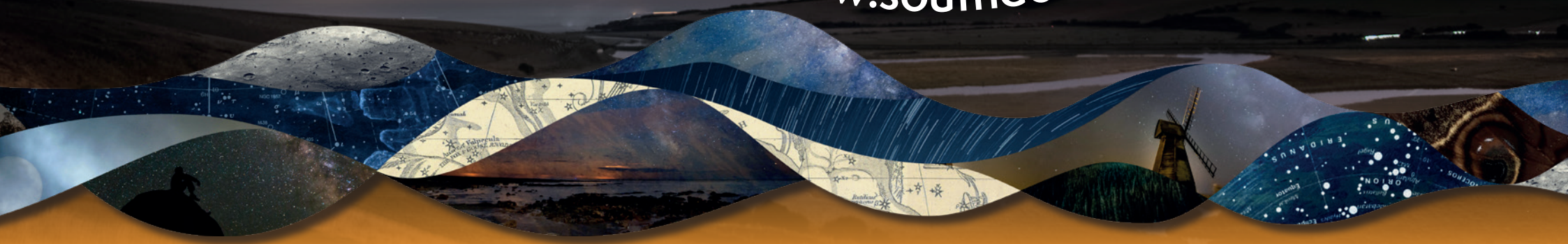
SOUTH DOWNS
NATIONAL PARK

STAR PARTY PACK FOR SCHOOLS



Top tips,
activity ideas,
games and
printable
resources

www.southdowns.gov.uk/darkskies



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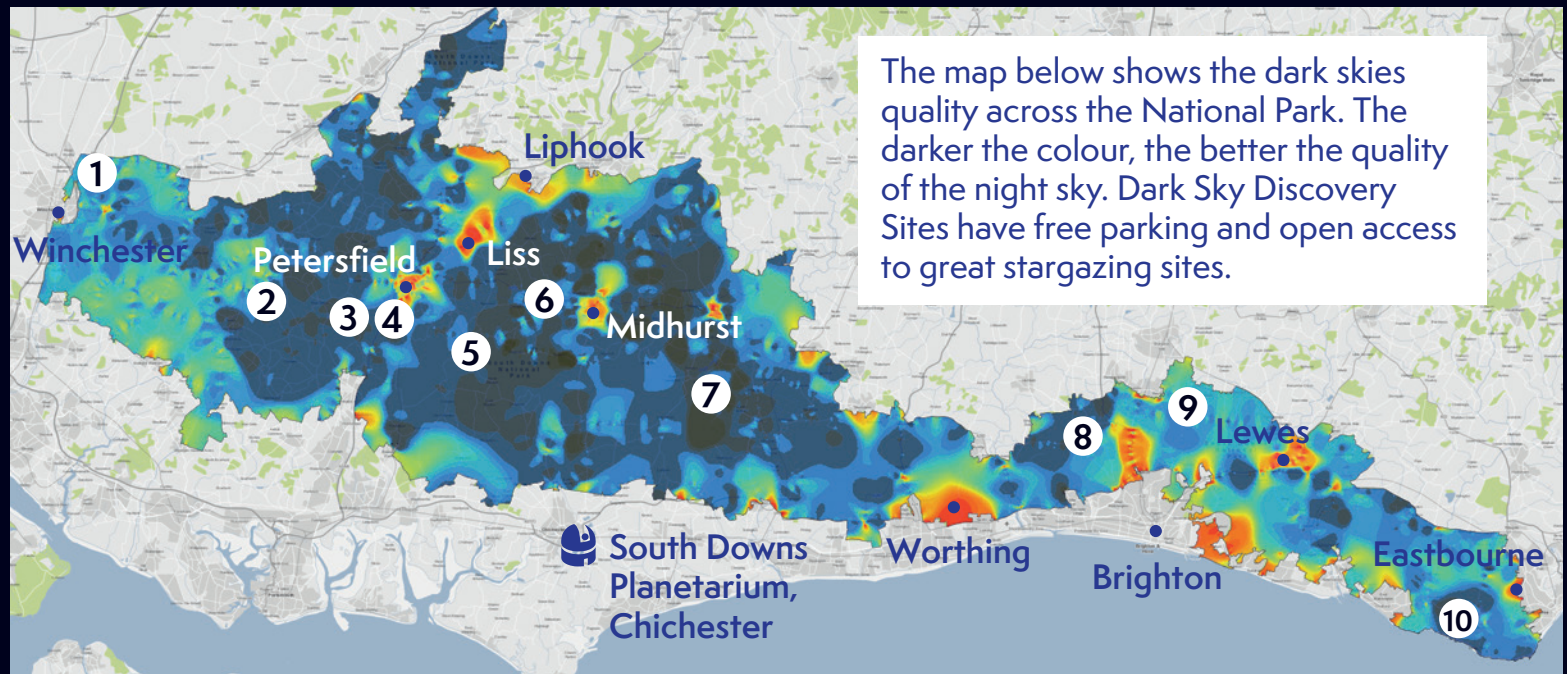
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THE SOUTH DOWNS INTERNATIONAL DARK SKY RESERVE

In May 2016 the South Downs National Park became an International Dark Sky Reserve (IDSR). We think our star-studded skies overhead are as valuable as our beautiful rolling landscapes and, with properly dark skies in the south east of England under threat, this is a statement that the skies of the National Park are worth protecting.

WHERE TO FIND THE TEN DARK SKY DISCOVERY SITES IN THE SOUTH DOWNS

- 1 Winchester Science Centre & Planetarium
- 2 Old Winchester Hill
- 3 Butser Hill
- 4 Buriton
- 5 Harting Down
- 6 Iping Common
- 7 Bignor Hill
- 8 Devil's Dyke
- 9 Ditchling Beacon
- 10 Birling Gap



SOUTH DOWNS DARK SKIES FESTIVAL

Held in February each year, the festival is all about discovering, learning and enjoying the dark and the stars you can see as a result.

This could mean getting out for an activity such as cycling, walking or running, caving at night, attending a stargazing party, or taking part in a daytime event, learning more about star constellations or making a rocket.

There are events for families, first-time stargazers and those wishing to expand their knowledge or astrophotography skills further. We work with local astronomy clubs and other star loving organisations to help you discover the wonder of the night skies above your National Park.

Keep an eye on our website southdowns.gov.uk for details of upcoming events and contact information if you'd like to get involved.

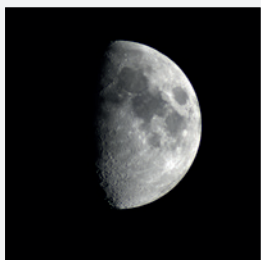


PLANNING YOUR STAR PARTY – TOP TIPS



SET THE TIME AND DATE

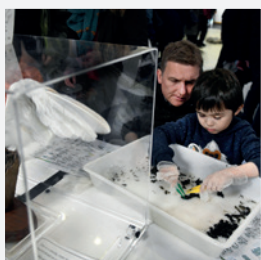
Make sure it's going to be dark or getting dark during your party. October to March is better for stargazing with younger children as it gets dark by early evening. Visit gostargazing.co.uk and use the Dark Sky Calendar. Most prominent stars can be seen with the naked eye at nautical twilight.



SEEING THE STARS, THE MOON AND PLANETS

Viewing space through a telescope is a wow moment, but it's not possible to see everything on the same night. When the moon is illuminated you can study its craters in great detail, but the light reflected from the moon's surface will make it harder to see distant

stars, planets and galaxies. Visit gostargazing.co.uk and use the Dark Sky Calendar to find out what you'll be looking at during your star party. *A quarter moon is best to see a bit of everything.*



PLAN SOME FUN ACTIVITIES, INDOORS AND OUT

A star party isn't just about stargazing, there are myths and legends in the constellations, nocturnal creatures and stories of human space exploration. Set up crafts, games and learning areas to create a range of activities for the party goers. **Use the activity**

ideas, games and printable resources (page 9 onwards) in this pack to get your activity planning started.



GET EVERYONE INVOLVED

Ask friends and family to help out, get in touch with your local astronomy group (page 8) to help set up telescopes or contact a local nature reserve, outdoor education centre or Forest School provider to see if they can offer sessions and activities at your party, e.g. bat detecting, night orienteering or campfire cooking.



MAKE IT A MINI RESIDENTIAL

Bring sleeping bags for the hall or setup tents in summer. An in-school residential experience can support progress towards a Brilliant Residential, see learningaway.org.uk, or contact your outdoor education advisor:

- ★ **Brighton & Hove**
Paula.Greening@brighton-hove.gov.uk 01273 293642 or 07823 362859
- ★ **East Sussex**
Leanne.Bentley@eastsussex.gov.uk 01273 482522 or 07395 283534
- ★ **West Sussex**
Simon.Whitmore@westsussex.gov.uk 03302 227009
- ★ **Hampshire**
outdoor.education@hants.gov.uk 01962 876218

STARGAZING TOP TIPS



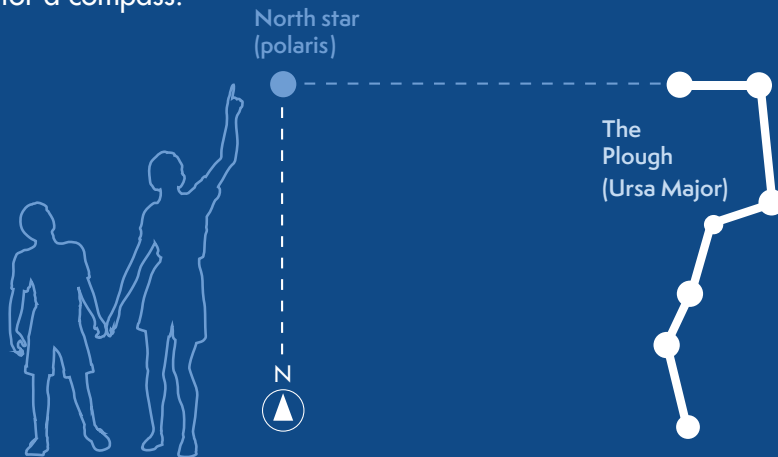
- ★ Have blankets or mats to lie on
- ★ Wrap up warm
- ★ Have snacks and hot drinks available
- ★ Allow time for your eyes to adjust – this takes around 20 minutes so turn off any lights, torches and put your mobile phone away
- ★ Telescopes and binoculars are helpful – but on a clear night you will be able to see lots with the naked eye

TOP TIP: telescopes will need to be set up away from artificial light sources with views that aren't blocked by buildings or overhanging trees.

WHICH WAY IS NORTH?

The North Star is positioned above the North Pole and appears to stay still in the night sky as the Earth rotates beneath it. For this reason it has been used for centuries as a navigation tool, and still can be today!

Use the diagram to find the North Star and determine which way is north – no need for a compass.



WHAT IS A SHOOTING STAR?

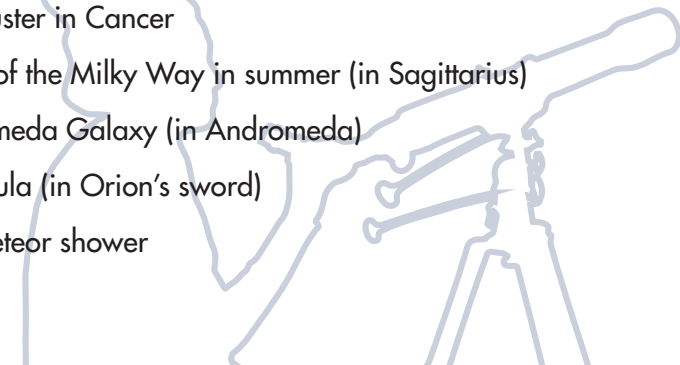
These streaks of light which you see racing across the night sky aren't actually anything to do with stars, they are instead tiny bits of dust and rock called meteoroids. As they fall into the Earth's atmosphere they burn up, creating a short-lived trail of light known as a meteor. If any of the meteoroid survives the fall to Earth the remaining bit is called a meteorite.

Meteor showers occur when the Earth passes through the trail of debris left by a comet as it orbits the sun. They can produce spectacular night-time scenes – keep a lookout for the Perseids meteor shower which peaks on the 12 August and the Orionids shower on 22 October.

HAVE YOU SEEN?

Keep your eyes peeled for these 11 features which you can see with the naked eye or a pair of binoculars.

- ★ The North Star
- ★ The moon's largest crater – Tycho
- ★ Shooting star
- ★ Jupiter
- ★ Saturn's rings
- ★ The dark dust lanes of the Milky Way in winter
- ★ Beehive Cluster in Cancer
- ★ The centre of the Milky Way in summer (in Sagittarius)
- ★ The Andromeda Galaxy (in Andromeda)
- ★ Orion Nebula (in Orion's sword)
- ★ Perseids meteor shower



NOCTURNAL WILDLIFE

Dark skies are not just important for helping us see the stars and planets, they are vital for nocturnal wildlife. Keep a look out or listen for some of these while you're stargazing.

★ There are about 16 protected species of **bats** breeding in the UK. It is easy to spot their jerky flight but to hear their cacophony of clicks and whistles you'll need a bat detector.



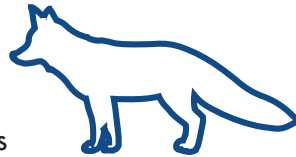
★ Most of the UK's 800 species of **larger moths** are strictly nocturnal. Look out for hawk-moths in the South Downs, they are big and colourful.



★ **Barn owls** (1) are unmistakable and appear like floating white ghosts as they patrol field margins for mice and shrews. **Tawny owls** (2) are commonly found in woodland with their bodies streaked in brown and grey for camouflage.



★ Their recognisable bark or scream can shatter a peaceful night, and often sound quite eerie during mating season (December to February). Look for signs of **foxes** such as droppings (black if fresh or grey if old), hair on fences and their pungent scent.



★ Shine your torch at moist, grassy areas to spot these little mammals. **Hedgehogs** are very timid so don't be shocked if they roll up into a ball when you find them.



WHAT YOU CAN DO TO HELP

There are a few things you can do to help protect dark skies and nocturnal wildlife which depend on darkness for survival.

★ Check the outdoor lighting around your school. Is it really needed? If not, turn it off, or if it is, make sure it's fully shielded so light is directed down on to the ground.



★ Buy lamps under 500 lumens to reduce light pollution.



★ Plant paler, night-scented flowers to attract night-time insects.



★ Install a bat box on a tree in your school grounds.



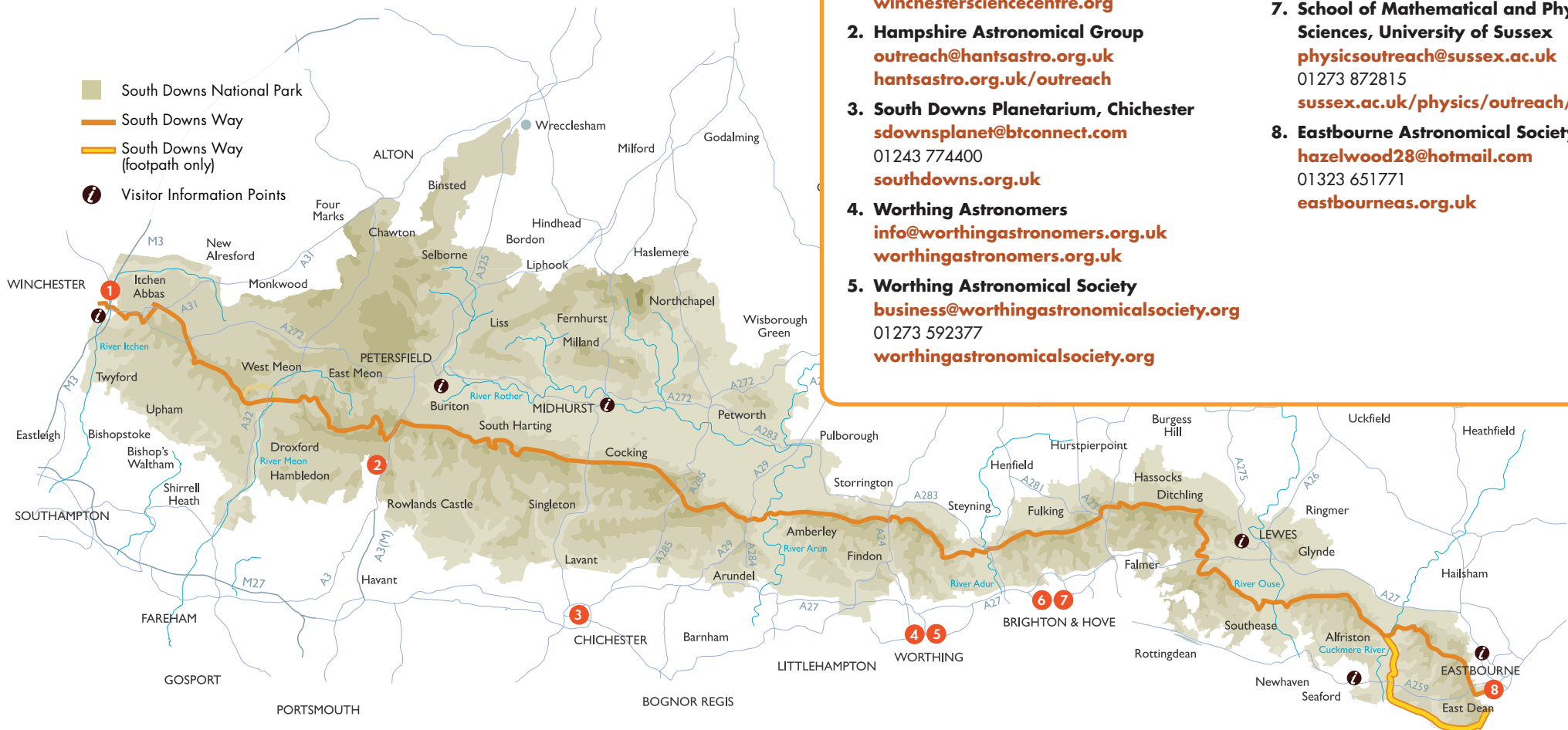
★ Spread the word! Tell your family, friends and neighbours about why dark sky friendly lighting is important. The more people that know, the better protected our dark skies will be.



LOCAL ASTRONOMY GROUPS AND OTHER CONTACTS

Get in touch with your local contact to see if they can help out at your star party. They might be able to bring along some telescopes, set them up in the playground and help your party goers to spot some of the best bits of the night sky, or provide other activities and games.

1. **Winchester Science Centre & Planetarium**
education@winchestersciencecentre.org
 01962 863791
winchestersciencecentre.org
2. **Hampshire Astronomical Group**
outreach@hantsastro.org.uk
hantsastro.org.uk/outreach
3. **South Downs Planetarium, Chichester**
sdownsplanet@btconnect.com
 01243 774400
southdowns.org.uk
4. **Worthing Astronomers**
info@worthingastronomers.org.uk
worthingastronomers.org.uk
5. **Worthing Astronomical Society**
business@worthingastronomicalsociety.org
 01273 592377
worthingastronomicalsociety.org
6. **Brighton Astro**
hello@brightonastro.com
brightonastro.com
7. **School of Mathematical and Physical Sciences, University of Sussex**
physicsoutreach@sussex.ac.uk
 01273 872815
sussex.ac.uk/physics/outreach/
8. **Eastbourne Astronomical Society**
hazelwood28@hotmail.com
 01323 651771
eastbourneas.org.uk



PLANET PASS-IT

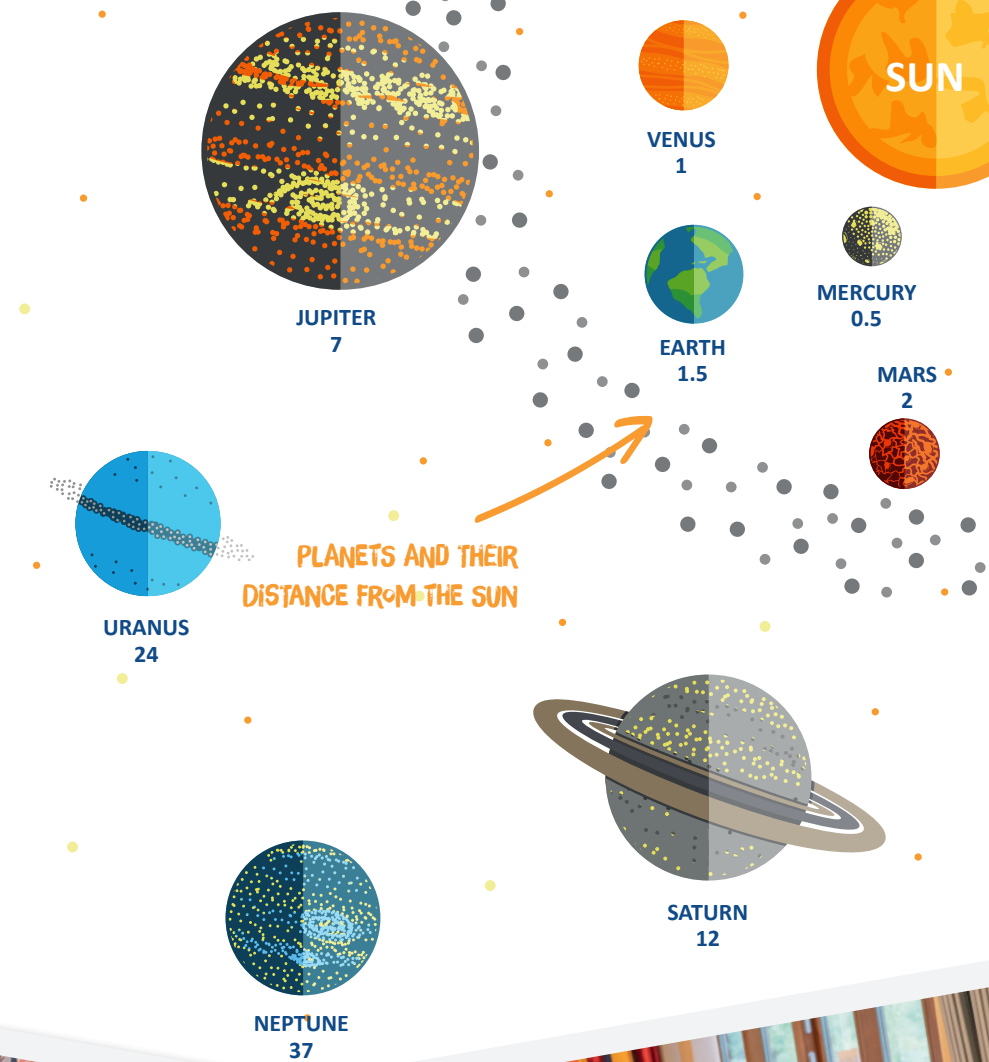
A fun, active game that shows how the planets are distributed through the solar system.

BEFORE THE PARTY:

- ★ Print and laminate the set of 8 planet images and the sun (pages 13 to 21).
- ★ Lay the solar system out on the hall floor, using the distances given in the diagram in the top right corner (*units can be paces, feet, metres, etc., whatever fits in your space.)
- ★ Tape them to the floor to avoid slips and trips while playing.
- ★ Find a scoreboard and stopwatch.

AT THE PARTY:

- ★ A team of 9 children spread out, with one standing next to each planet and the sun.
- ★ Time how long it takes the team to pass a ball (or inflatable planet) up and down the line.
- ★ Record the best times on a scoreboard.



SPEEDY CONSTELLATION MAKERS

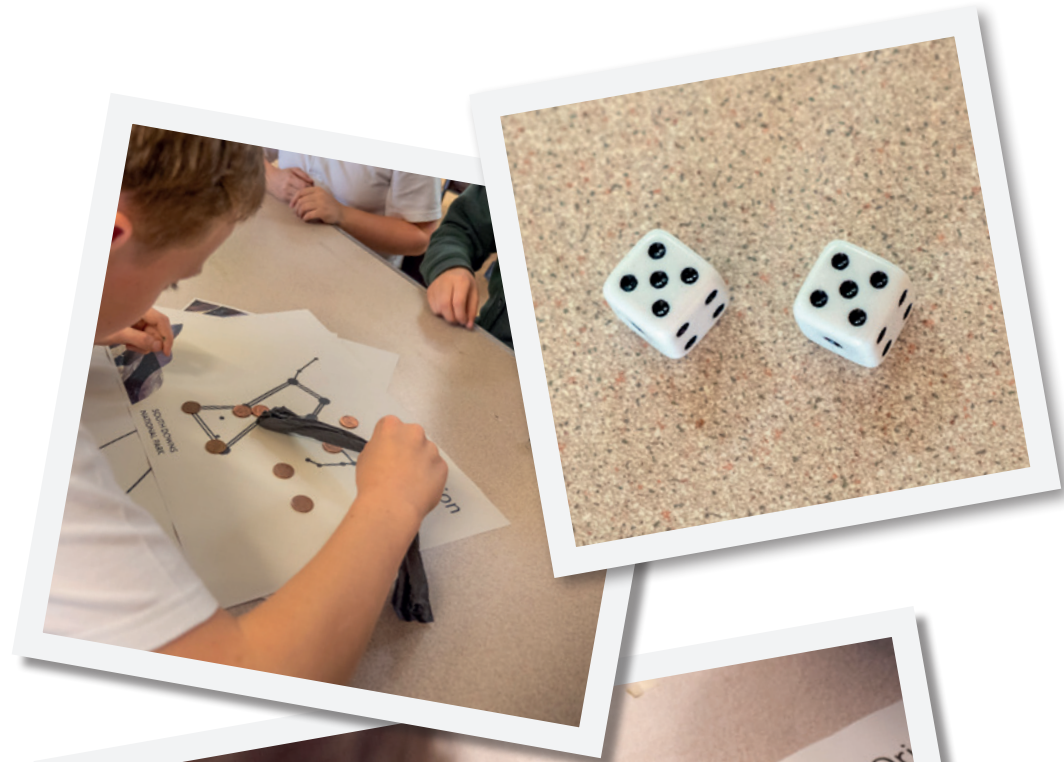
Another twist on a party classic that will help children recognise some of the most common constellations in our night skies.

BEFORE YOU START:

- ★ Print out the constellation patterns (pages 22 to 25).
- ★ Print out the point cards (page 26) and cut them so you have a selection of cards.
- ★ You'll need to find a pair of dice and some counters, pennies, etc.
- ★ Make a "hopeless" tool, something that will move the counters across the table, but not easily. A rolled up bit of tissue paper, or some wound-together pipe cleaners will do the trick.

TO PLAY:

- ★ Players take it in turn to roll the dice, if they roll a double they can pick up the useless tool and try to push the counters across the page to cover the constellation.
- ★ Other players continue to roll the dice in turn, trying to get a double. If a double is rolled before the current constellation-maker has finished, the counters are reset and the tool is passed to the new constellation maker.
- ★ If the constellation maker completes the constellation before a double is rolled, they win the corresponding points card.



PIN THE STAR IN THE DARK

A classic party game with a twist. Find where the darkest skies are near your school.

BEFORE THE PARTY:

- ★ Print out the star and planet templates (27–30), enough for everyone.
- ★ Print out the Dark Sky Discovery Map onto A3 (pages 31–36), trim and tape them together before pinning it to an easily accessible wall/display board.

AT THE PARTY:

- ★ Children cut out and colour in their own star or planet.
- ★ Blindfold children one at a time and challenge them to stick their star or planet onto the discovery site closest to school.



HOWLING WOLVES

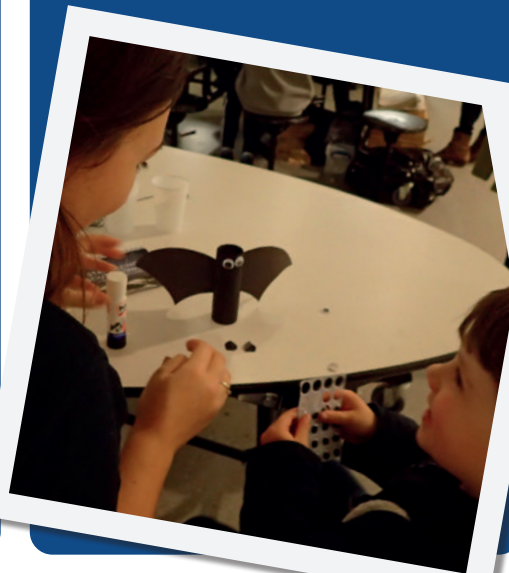
A simple variation on “Grandma’s footsteps”.

At the party:

- ★ An astronaut stands on the moon at one end of the field, playground or hall.
- ★ A group of wolves gather at the other end.
- ★ The astronaut turns their back and the wolves attempt to race across and tag the astronaut, howling as they go.
- ★ Whenever the astronaut turns around, the wolves must freeze and fall silent.
- ★ If a wolf is caught moving, howling or whimpering, they are sent back to the start.

CRAFTY NOCTURNAL ANIMALS

There are lots of simple craft activities to make bats, owls and hedgehogs. A quick internet search will give you some ideas to make use of the materials you have available in school.



BLACK AND WHITE ART

Use chalk to draw on black sugar paper, or charcoal to draw on white paper. Search online for images of black and white wildlife illustrations, especially nocturnal creatures, and print them out as inspiration for the party goes.



CAMPFIRE COOKING

If you are confident cooking around a fire, make a simple bread dough and shape it into rockets, alien faces or other space-themed shapes. Have a big pot of jam or honey for dipping once the bread is cooked.



OTHER RESOURCES

Check out these websites for other information, activities and resources:

- ★ International Dark Sky Association – darksky.org
- ★ The Commission for Dark Skies – britastro.org/dark-skies
- ★ Go Stargazing – gostargazing.co.uk
- ★ Night Blight – CPRE – nightblight.cpre.org.uk

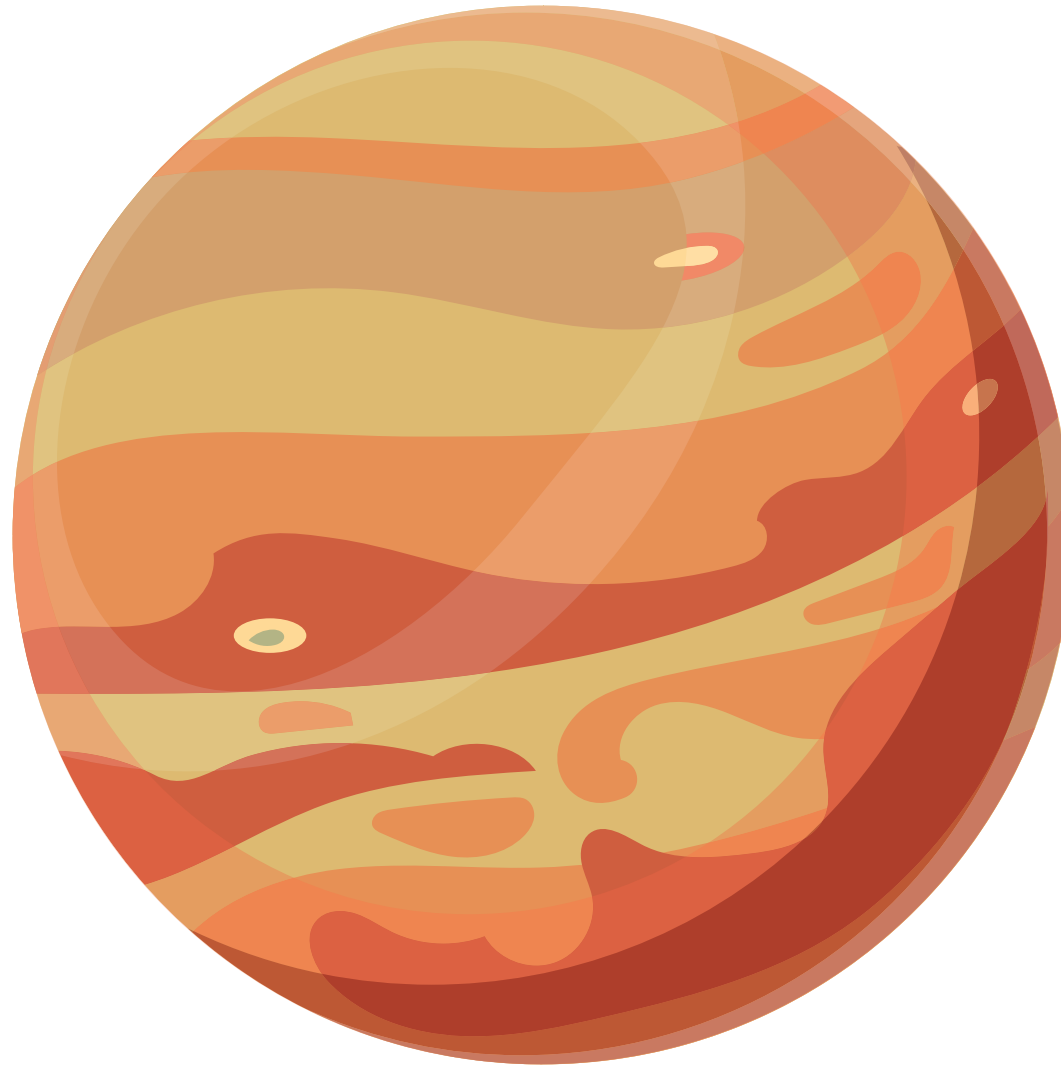




SUN



MERCURY



VENUS

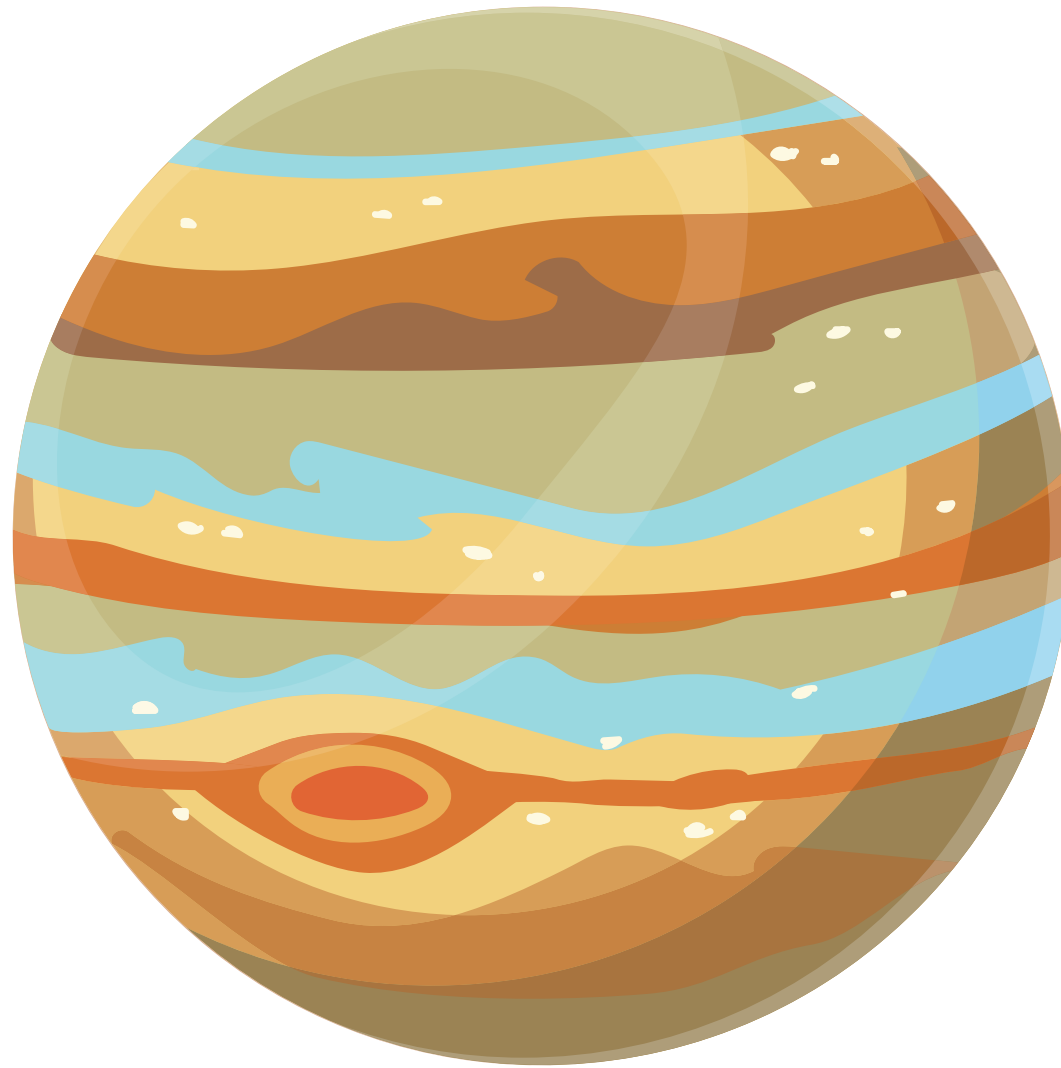
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EARTH



MARS



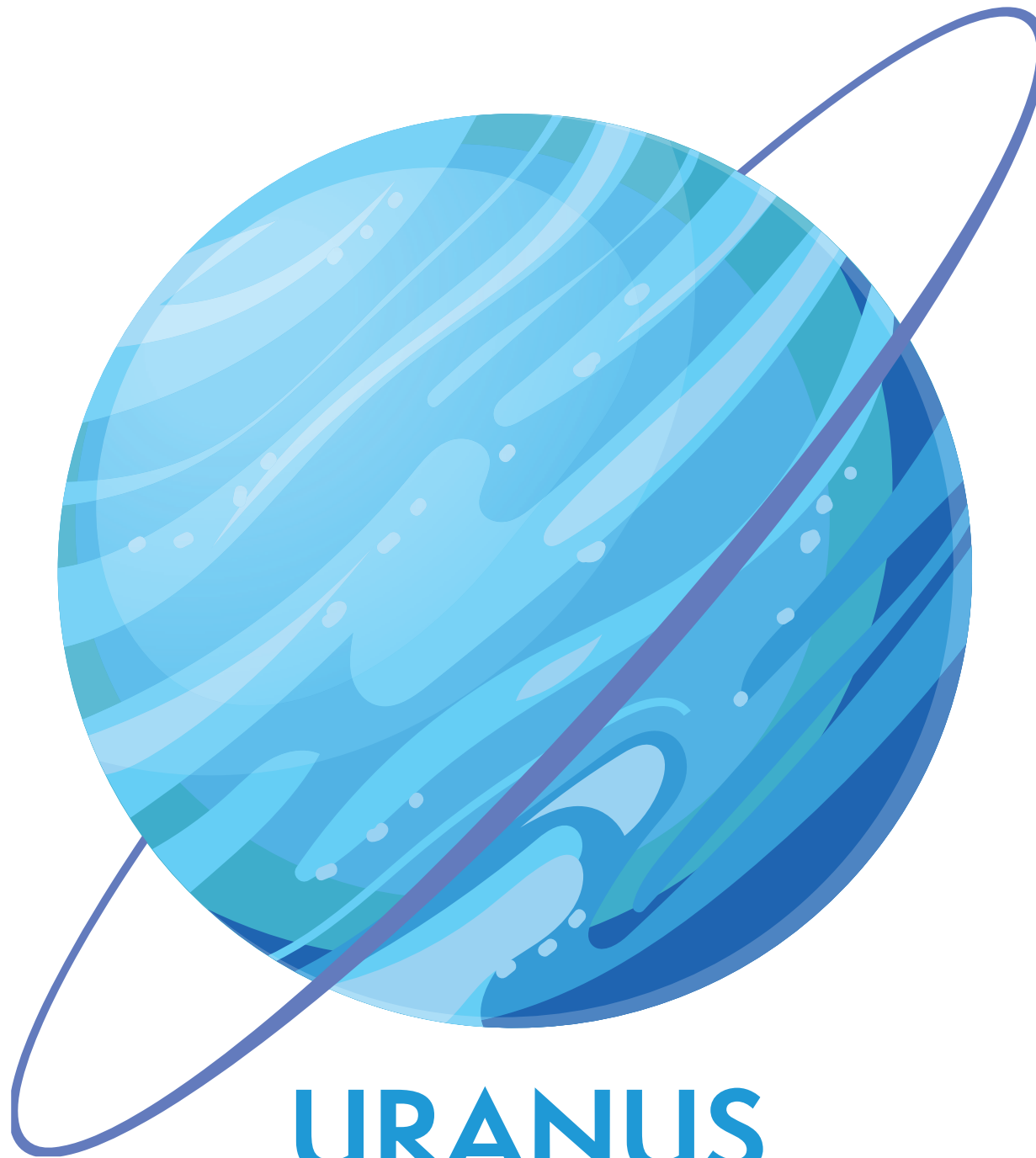
JUPITER

SOUTH DOWNS
NATIONAL PARK



SATURN

SOUTH DOWNS
NATIONAL PARK



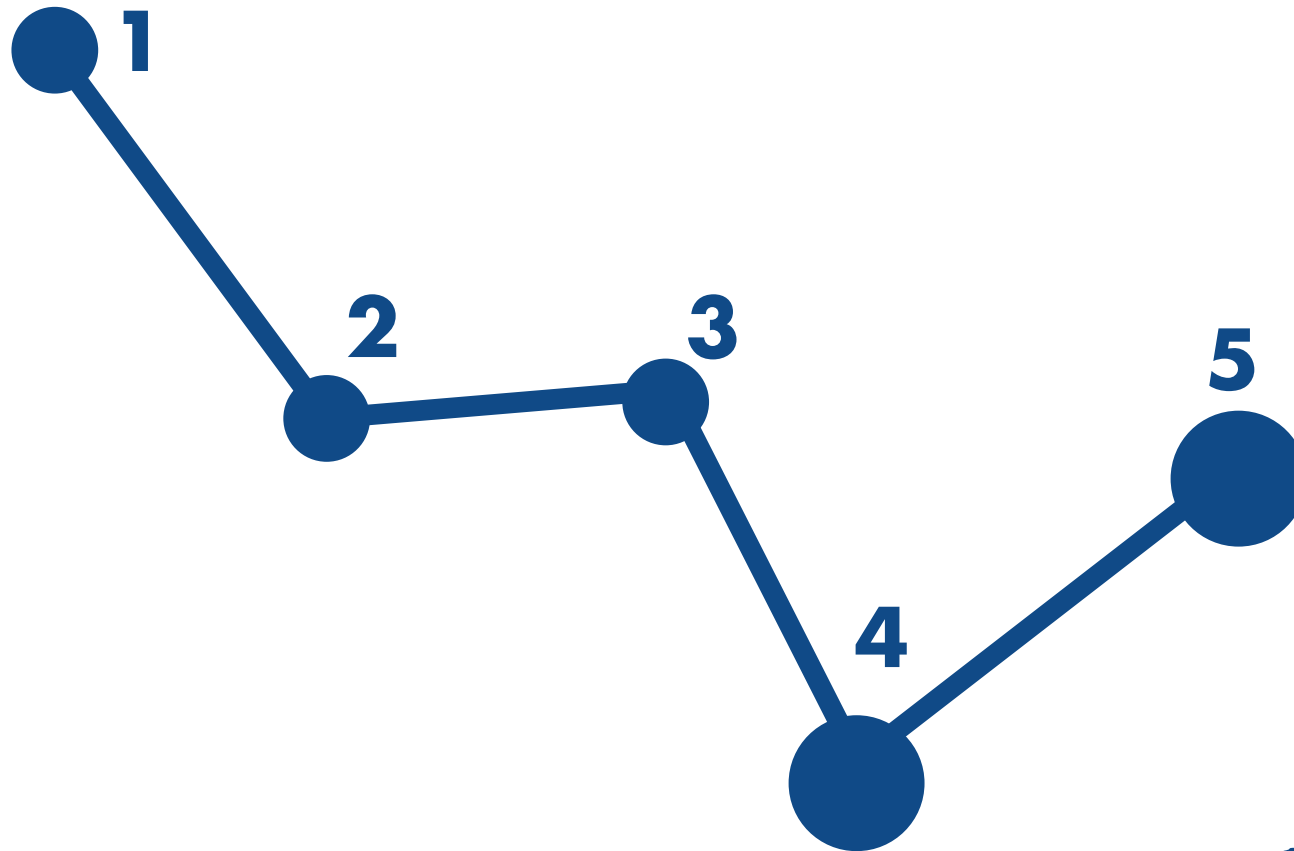
URANUS



NEPTUNE

CASSIOPEIA

SOUTH DOWNS
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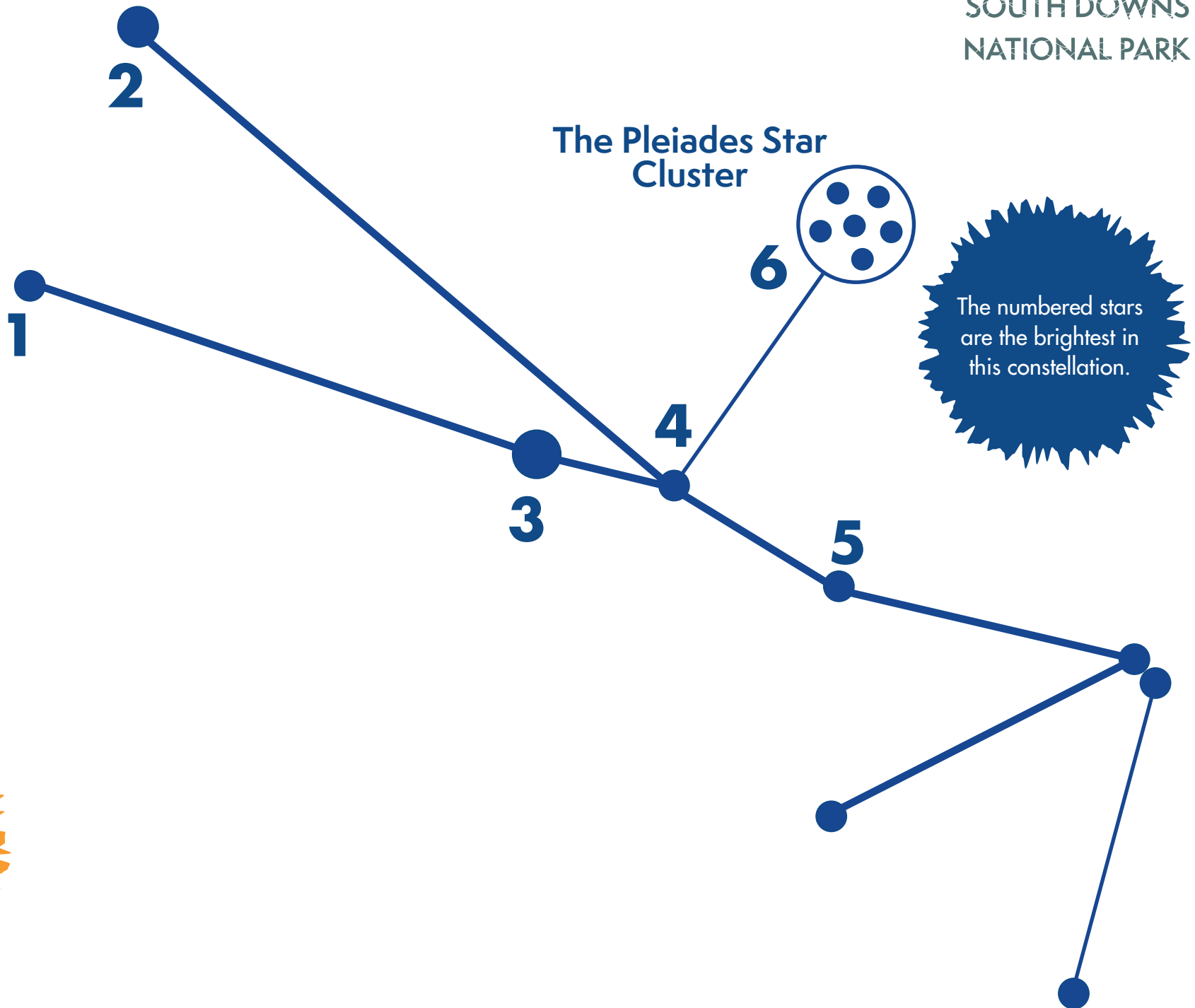


**START
ZONE:
5 STARS**

This is a simple
constellation with
five bright stars.

TAURUS

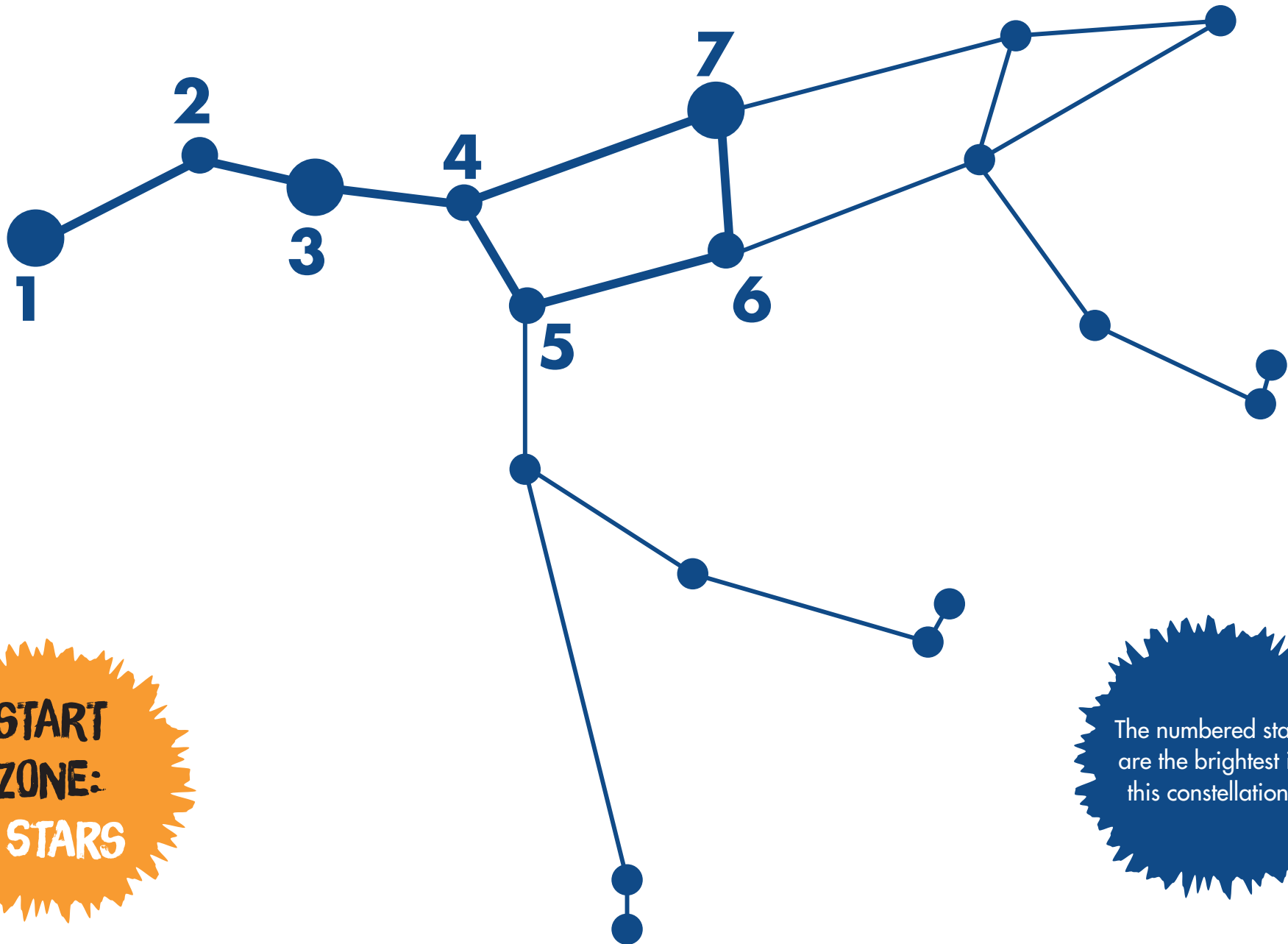
SOUTH DOWNS
NATIONAL PARK



**START
ZONE:
6 STARS**

URSA MAJOR

SOUTH DOWNS
NATIONAL PARK

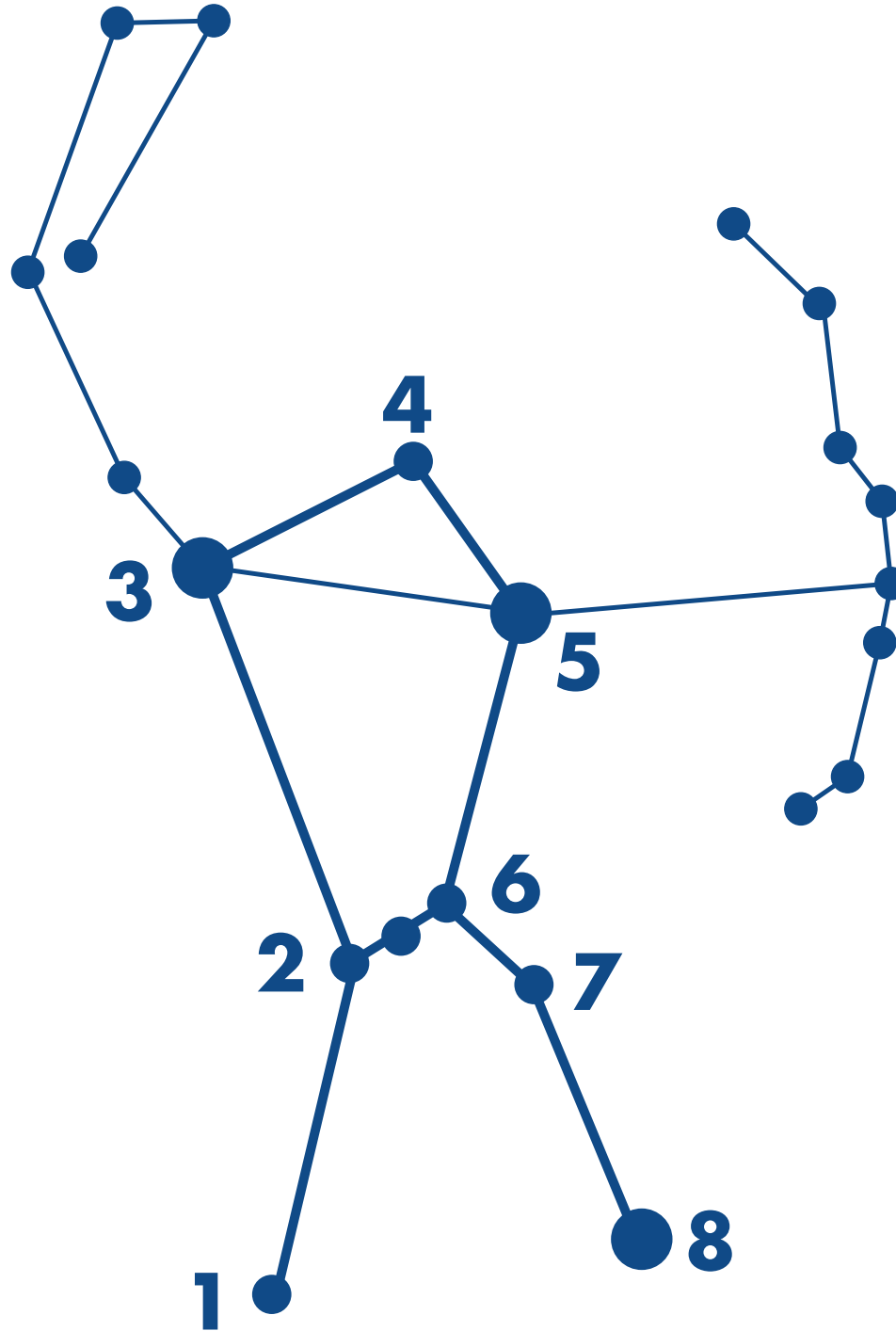


**START
ZONE:
7 STARS**

The numbered stars
are the brightest in
this constellation.

ORION

SOUTH DOWNS
NATIONAL PARK

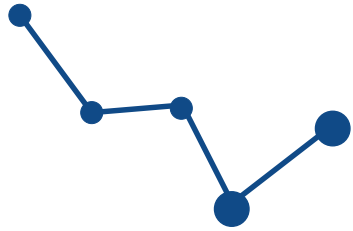


**START
ZONE:
8 STARS**

The numbered stars
are the brightest in
this constellation.

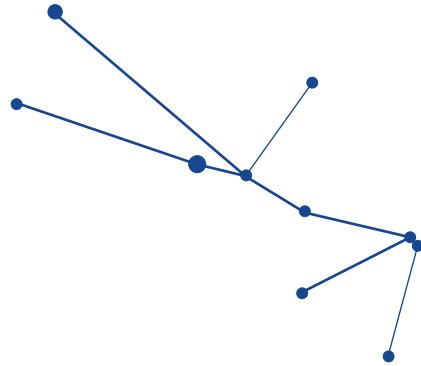
SPEEDY CONSTELLATION MAKERS POINTS CARD

SOUTH DOWNS
NATIONAL PARK



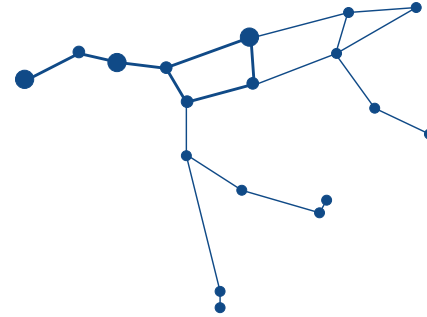
CASSIOPEIA

1
POINT



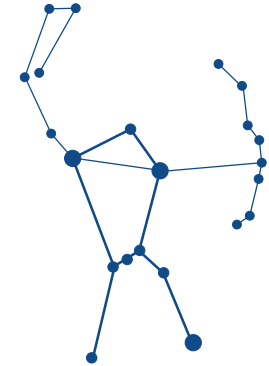
TAURUS

2
POINTS



URSA MAJOR

3
POINTS



ORION

4
POINTS

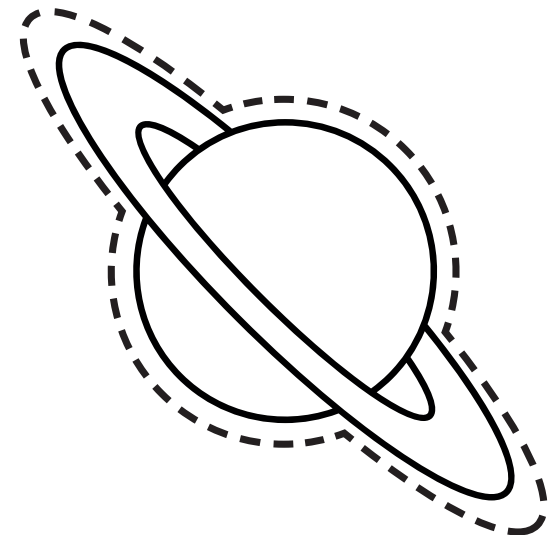
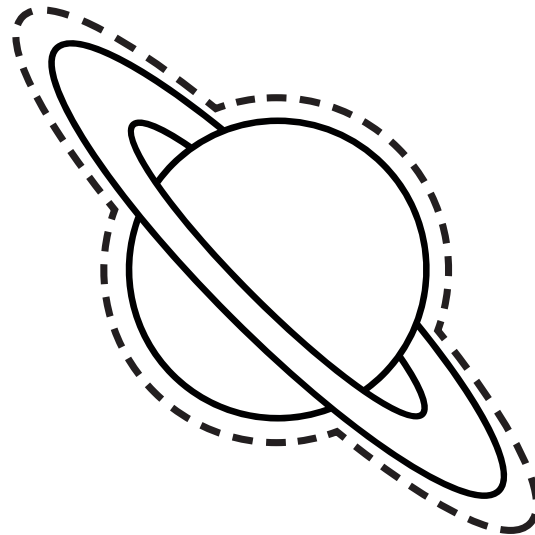
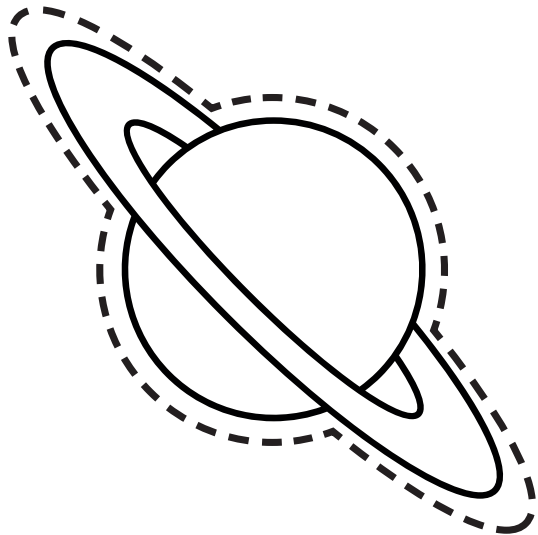
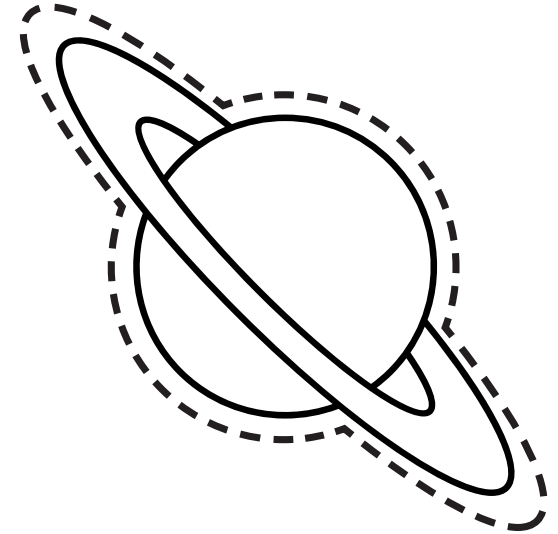
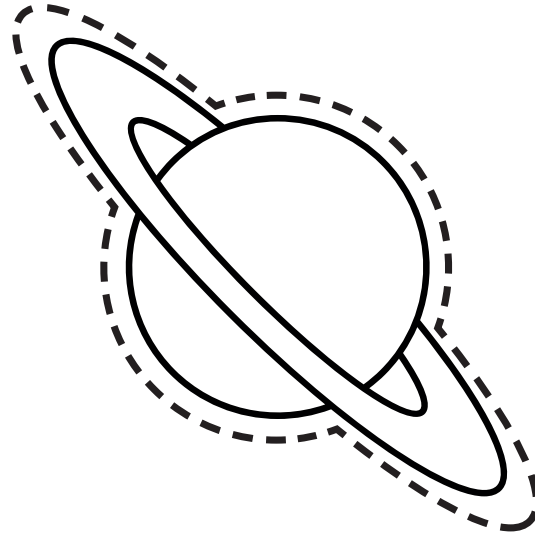
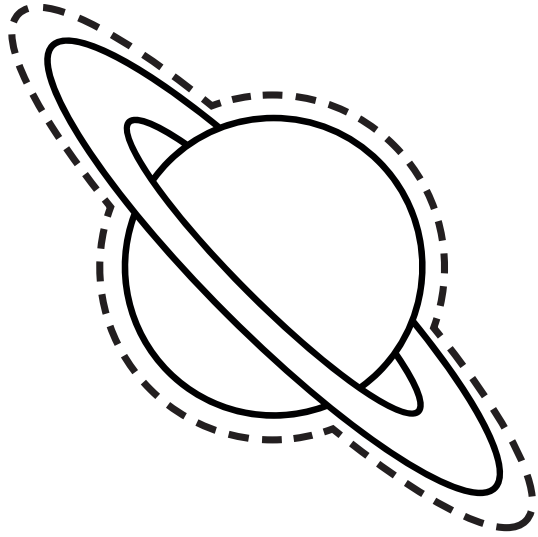
STAR

SOUTH DOWNS
NATIONAL PARK



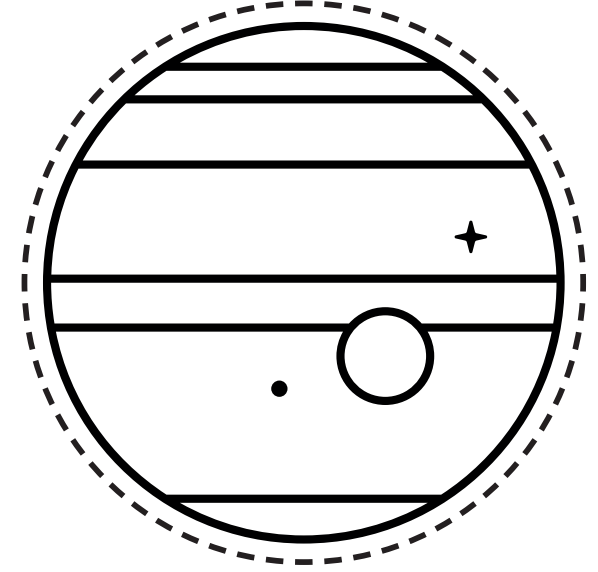
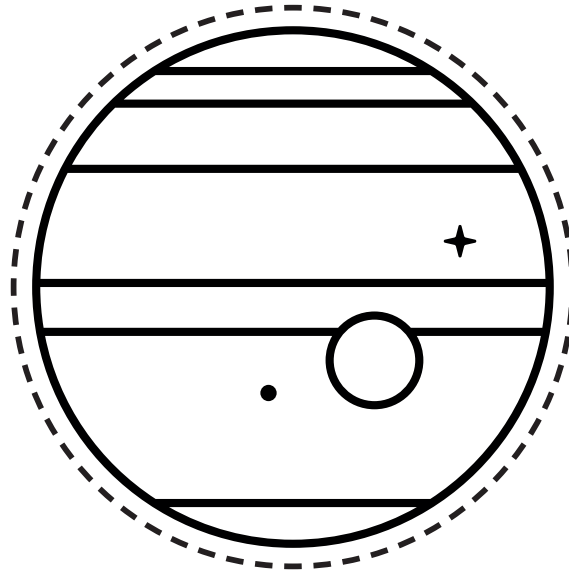
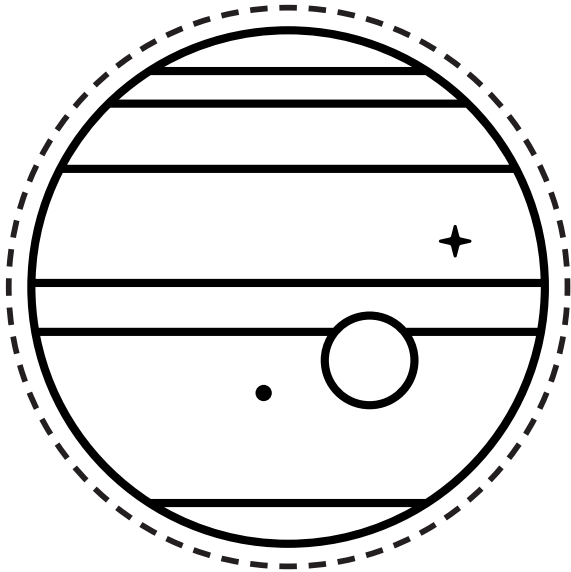
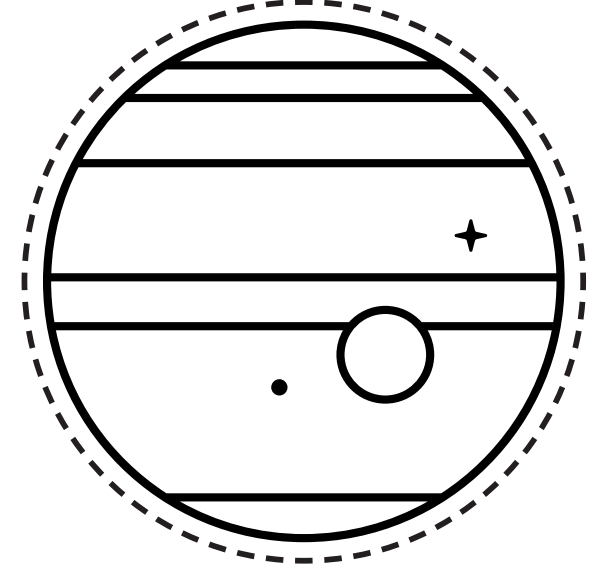
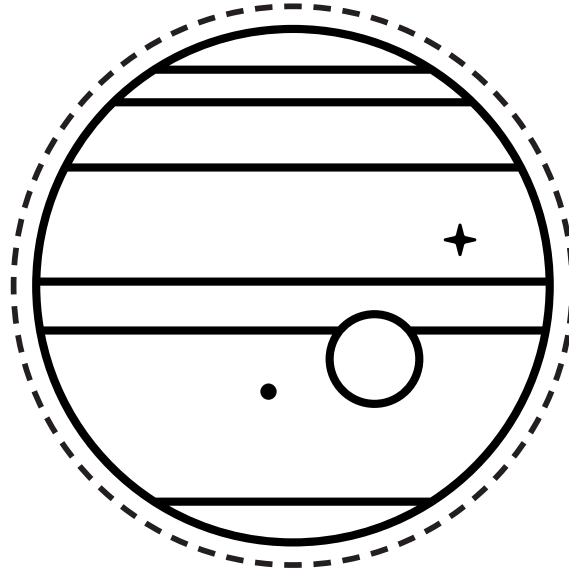
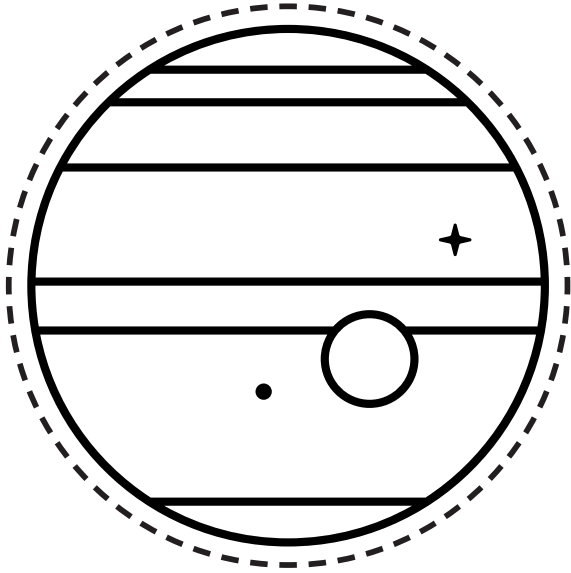
SATURN

SOUTH DOWNS
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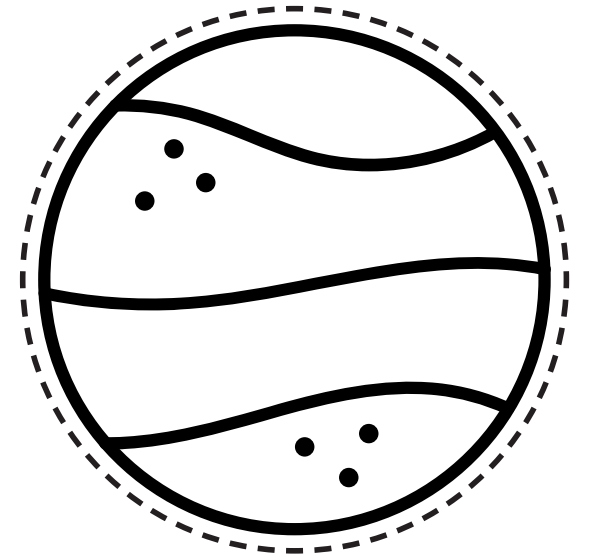
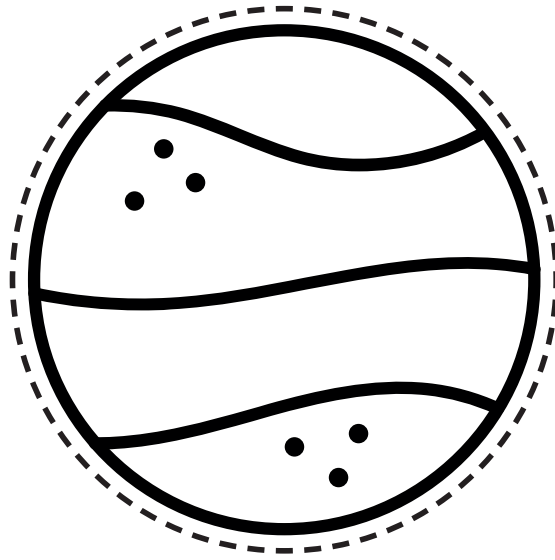
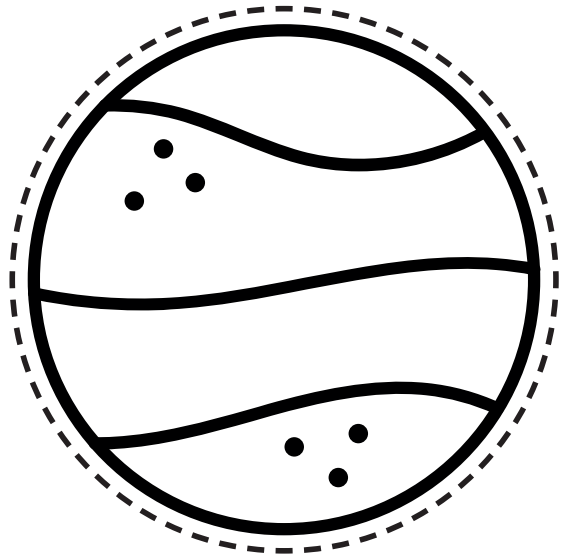
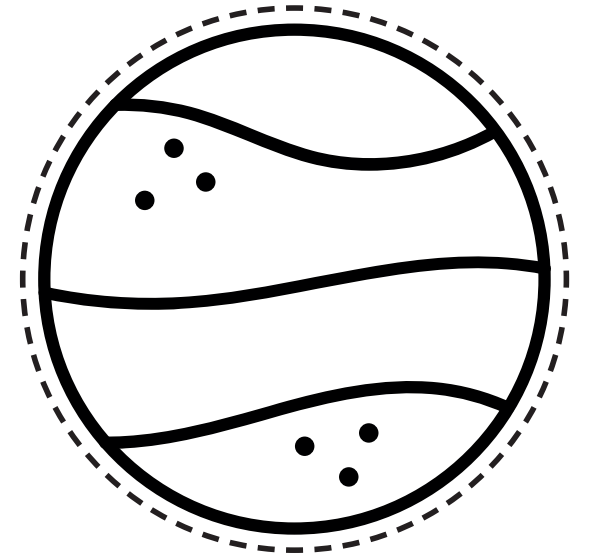
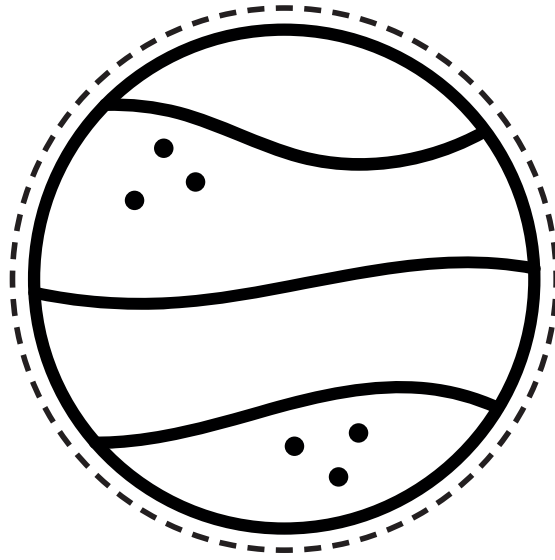
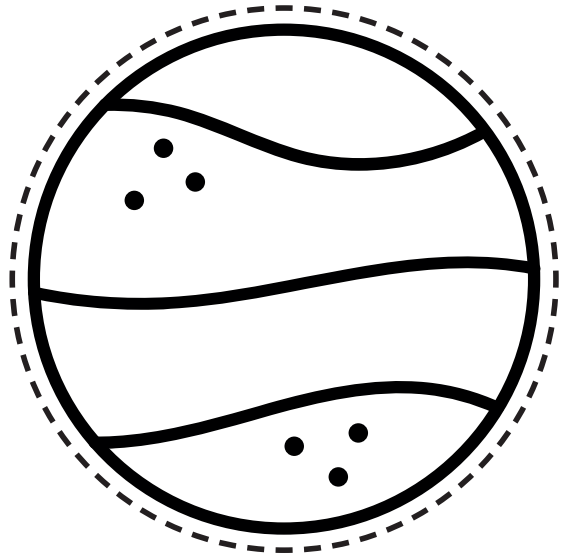
JUPITER

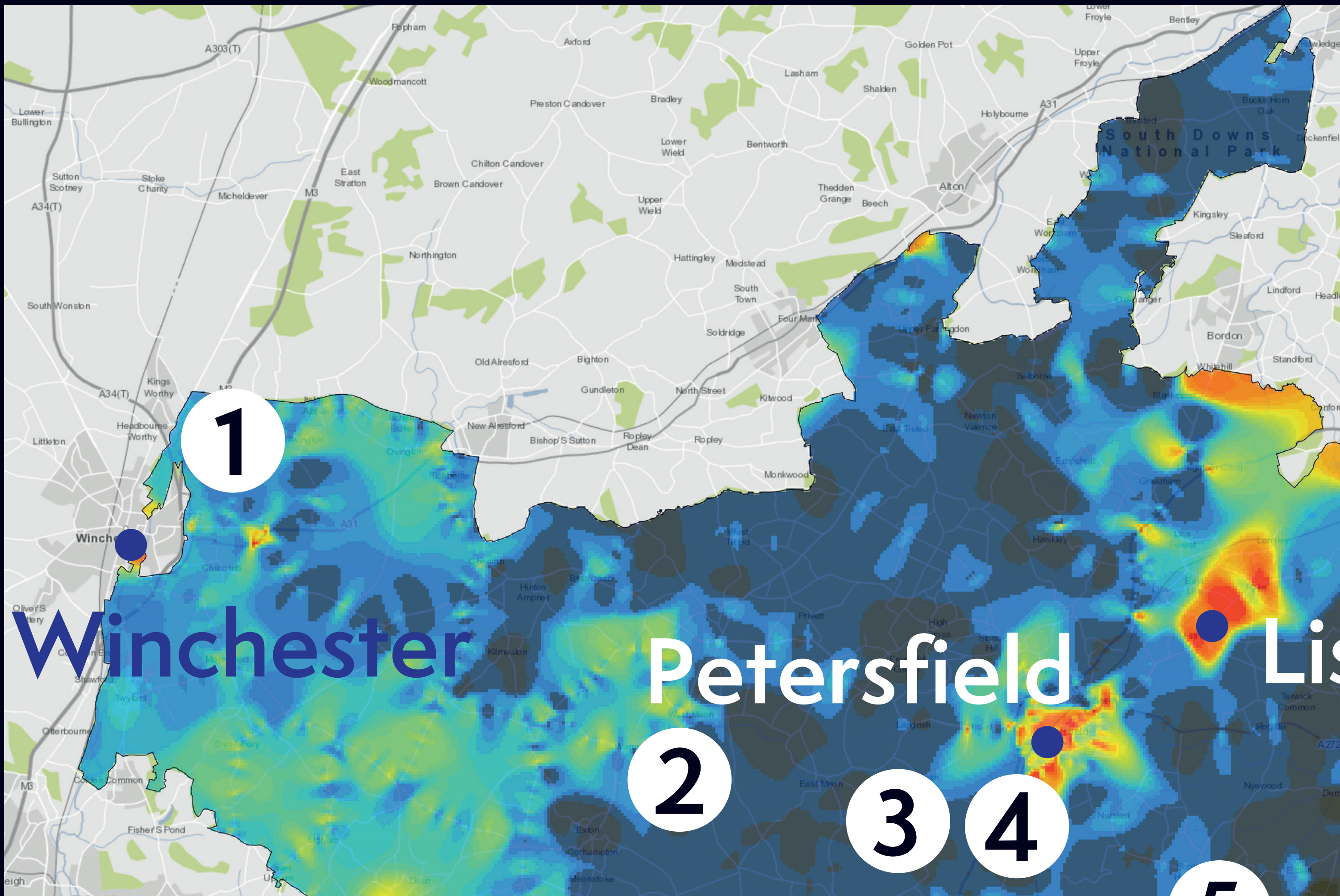
SOUTH DOWNS
NATIONAL PARK



MARS

SOUTH DOWNS
NATIONAL PARK





1

Winchester

2

Petersfield

3

4

5

Lisieux



Liphook

SS

6

Midhurst

WH
DISC

1

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4

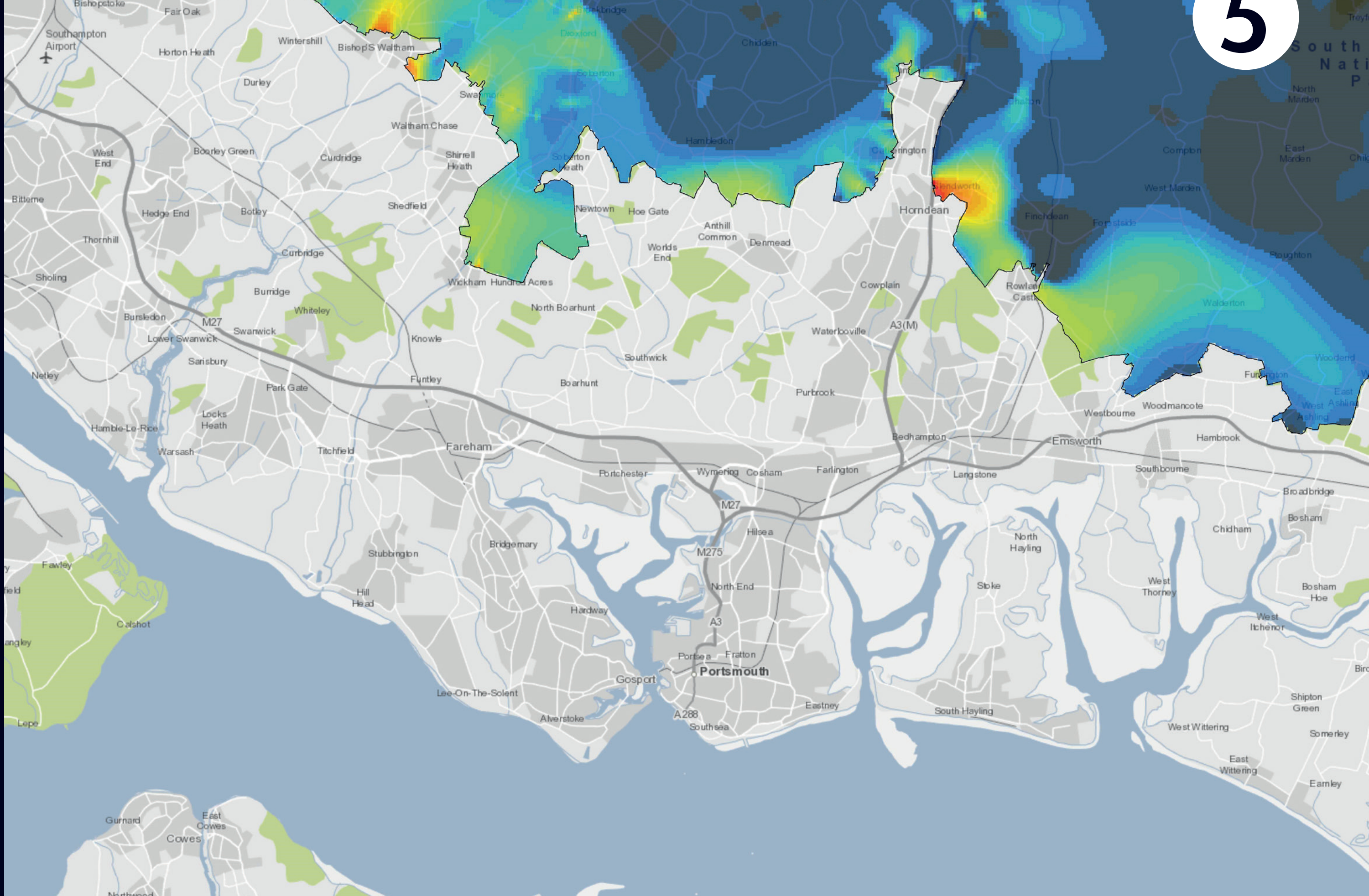
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WHERE TO FIND THE TEN DARK SKY COVERY SITES IN THE SOUTH DOWNS

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Old Winchester Hill
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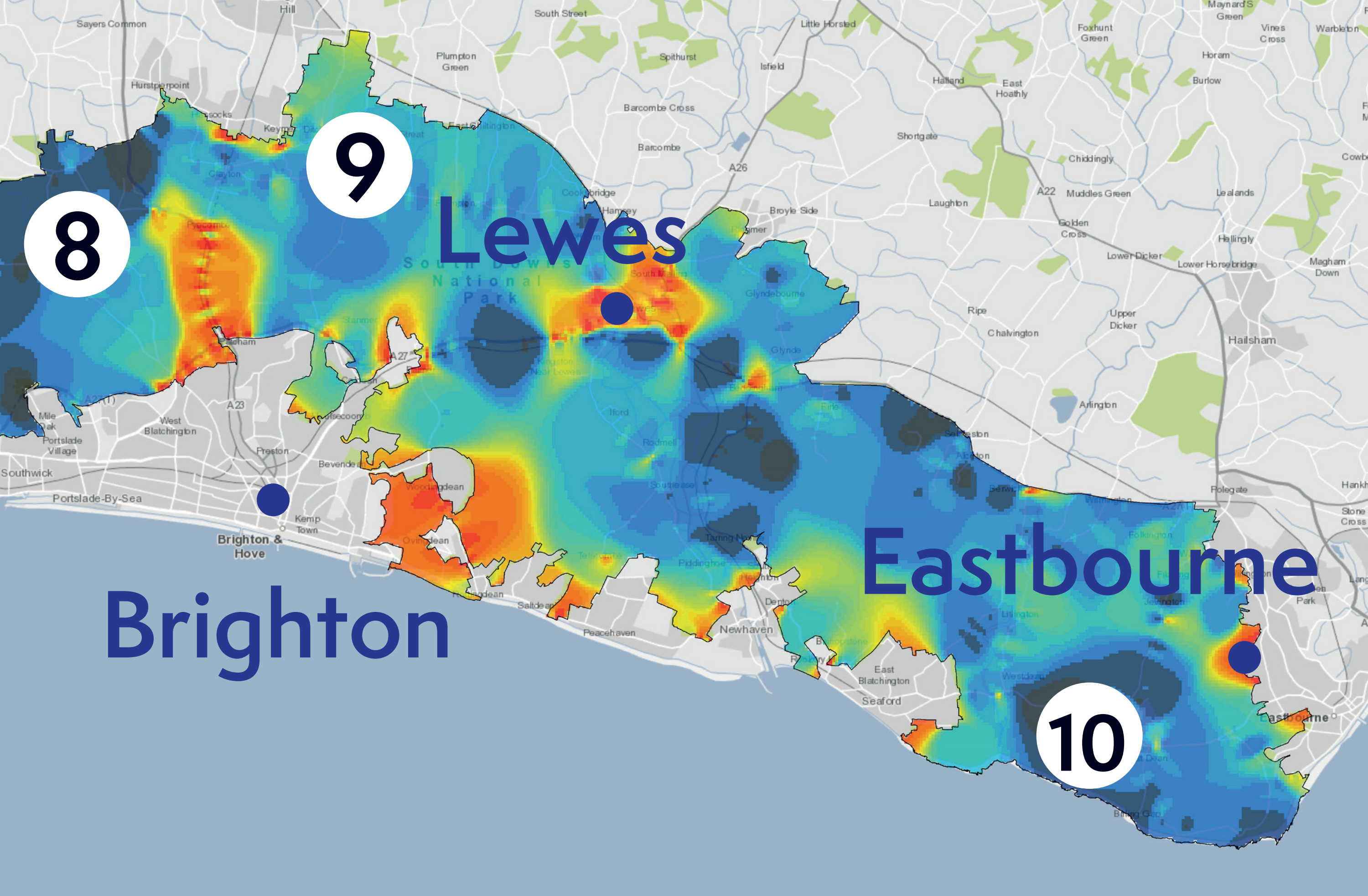


7



South Downs Planetarium, Chichester

Worthing



8

9

10

Brighton

Lewes

Eastbourne