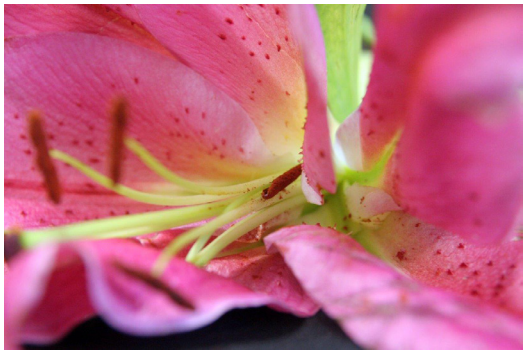
BACKYARD ACTIVITIES
MACRO PHOTOGRAPHY



WHAT YOU NEED

- A smart phone or a digital camera

Optional extra- a smart phone macro lens

If you've ever seen the WILDLIFE PHOTOGRAPHER exhibition you might have felt inspired to get out your camera and explore the natural world around you. Climbing a tree in an orangutan sanctuary, telephoto lens and go-pro in hand may not yet be within your technical skill level or your quarantine-restricted environment, but a bit of macro photography of everyday environments definitely is.

The competition doesn't just feature epic shots of rare animals but also a range of intimate portraits of the tiniest flora and fauna - flowers, insects and funghi.

These are all great examples of macro photography. So anything from the vase of flowers in your kitchen to the snails in your backyard garden could be all the nature you need to capture beautiful wildlife photos.

Here's our how-to to taking your own backyard macro photos.

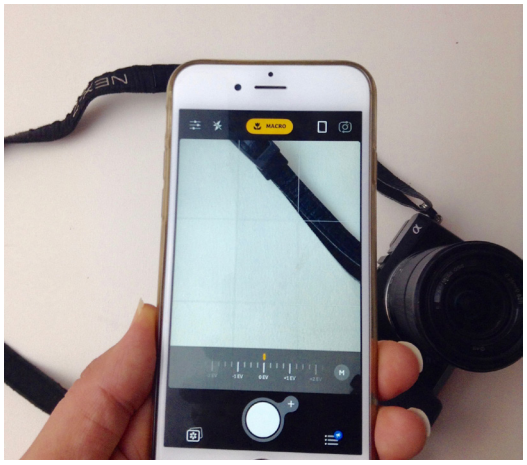
INSTRUCTIONS

What camera should I use?

Any camera from the sort you find on an iphone or an android phone, a top line SLR or a digital handy camera can be used to shoot nice macro images. High quality equipment is great for getting to the next level but when you're starting out, it's not about the equipment, it's about knowing a few tips and tricks to make the most of what you've got.

If you're using a phone....

- A clip-on macro lens will help improve your results. If you don't have one you just have to be more aware of light, focus and distance from your subject matter.
- Make sure you clean your camera lens! Phone lenses can get very grubby.
- Make use of manual-focus as the auto-focus can shift in and out when you are close to your subject matter on a phone.
- Good light will help your phone to focus better.



All digital cameras, even the small cheaper variety can take nice macro shots in manual mode.

Go into the settings and find the icon with a flower on it for some automatic macro settings to give you an idea of what F stop and ISO numbers work well. Once you feel confident with those concepts you are ready to move into manual mode.

BACKYARD ACTIVITIES
MACRO PHOTOGRAPHY

Step 1: TECHNICAL KNOW-HOW-
Using manual modes on a camera

To adjust the manual settings on your camera there are 3 things you need to know about

1) ISO – no that's not just short for isolation- this is the light sensitivity of your camera- you'll want a low number like 100-200 for bright sunlight or a higher number for low light and shadowy locations.

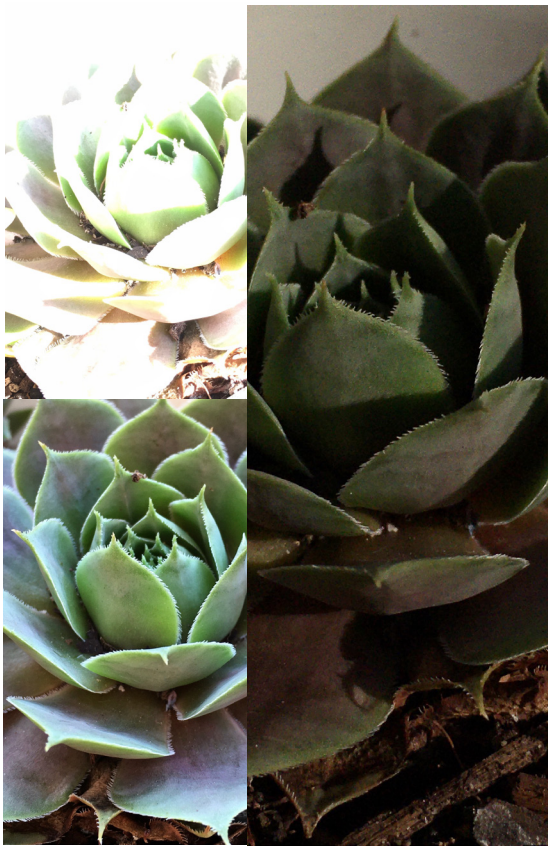
ON A PHONE – You can hold and swipe up to increase brightness in an image. If you want much more control on a phone try downloading an app like Camera + 2 to get a range of manual features for photography on a phone. Most importantly, you should try to shoot at a time when the light is already good.

2) APERTURE controls the depth of field – what is in-focus or out of focus in a shot. It allows light into your camera- a little bit for a bright environment or a lot for a dark environment. **Macro imagery is all about shallow depth of field**- a sharp focus on a subject surrounded by areas of blurring. In your camera this shows as the f-stop number. Macro photos have a **large aperture.**

This is where it gets confusing because **a large aperture is a small f-stop number** eg 2, and a small aperture is represented by a larger number eg 11. If your subject matter still seems a bit dark at the large aperture you set eg. f 2.8, you can bring up the iso to make it brighter.

ON A PHONE – Try using **portrait modes** to enhance this effect. Newer phones or apps may even allow you to adjust the f-stop number. If you don't have portrait mode just get nice and close to your subject and the focus will automatically blur out the background for you. You can also tap and hold the screen to get AE/AF lock – a sharp area of focus in your image.

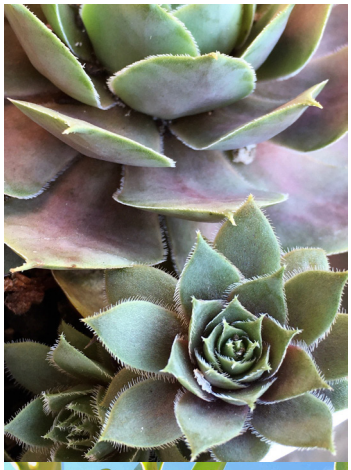
3) SHUTTERSPEED is the length of time the camera shutter stays open. Slow speeds create blur and fast speeds create sharp images, especially of moving subjects.
For this macro activity most of your subjects are inanimate objects so the speed is less of an issue. Capturing flying insects can be trickier, using a **burst shooting mode** can increase your chances of getting that perfect shot.

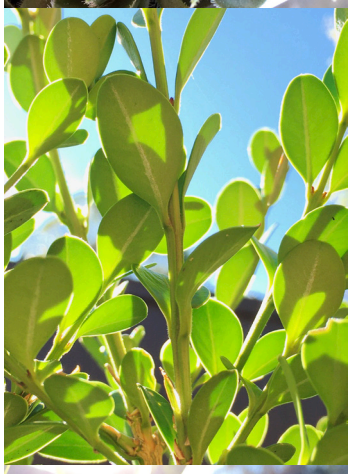


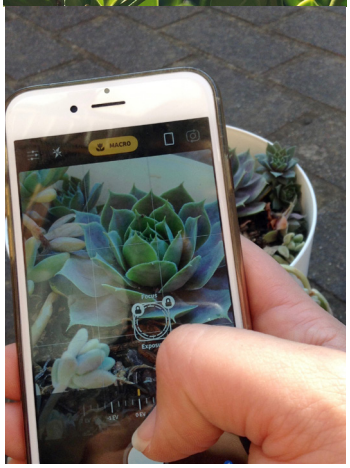
The above images show the same subject - overexposed, underexposed and at the correct exposure. It was a bright sunny day so we moved the pot plant into a shaded area to take the photo- this helped us to achieve the right ISO on a phone camera.

The above images show a large aperture typical of a macro photo- where the central area is in sharp focus and the background is nice and blurry. These images were all taken on a phone.

BACKYARD ACTIVITIES
MACRO PHOTOGRAPHY







STEP 2- PHOTOGRAPHIC CHALLENGES
Now you have some technical knowledge here's what you need to practice.

Activity 1- Focus on Framing
Framing is something that needs to be practiced. Learning to spot beautiful visual details that will work well in a shot takes time. Macro shots have a shallow depth of field- that means not everything in the image is in focus. You want the key subject – a ladybug, a leaf, a flower- to be mostly in focus.

TRY THIS: Shoot the same subject matter from a few different angles- from above, side on, from below, play with what's in the background (eliminate details that aren't working if you can) and the direction the light is coming from. Play with how much of your subject is in focus- the whole thing or just part of it.

Activity 2- Focus on Lighting
Photography is literally the capturing of light and the way it illuminates a subject so lighting is very important for your macro photos. Daylight is best and easiest to work with, but bright sunlight can make for harsh shadows. With macro photography, sometimes you can simply move your subject to decrease shadows- bending a leaf toward you or moving a pot plant into a new location to shoot.
Ideally you want a nice even light on your subject.

TRY THIS: While shooting on a sunny day use what you have to hand to ensure nice even light- eg. you can use your body to block the sun or reduce glare. With macro settings, very light areas will be bokeh- that means out-of-focus- a really pretty effect. Try shooting in a range of different lights from full sunlight to shade, into the light and away from the light, see the results for yourself.

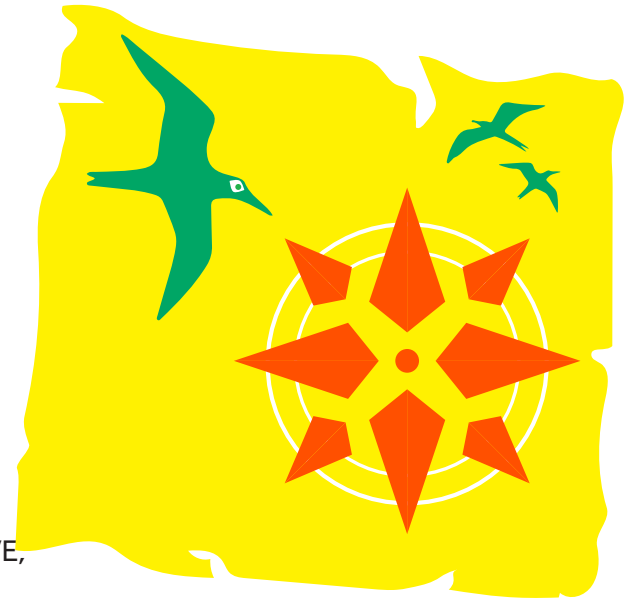
Activity 3- Stillness and movement
Movement of your subject or your camera/phone will result in overly blurry macro photos so try to keep everything very still when you shoot. This can be hard when the subject matter is blowing in the breeze or an insect crawling around.

TRY THIS: Hold your phone or camera with two hands to keep it steady. You could even use a tripod if you have one.
Experiment with a burst setting on insects and other moving subjects to ensure you get the in-focus shot.

And there you have it, all the expert knowledge you need to start shooting away.

We'd love to see and share your photos!
Share them with us web@sea.museum or tag us @sea.museum

EXPLORER'S JOURNAL & ORIENTEERING



MATERIALS
- journal (in your kit)
- pen and pencil (in your kit)
- compass/torch/emergency light keyring (in your kit)

ACTIVITY 1. DRAWING A MAP IN YOUR JOURNAL

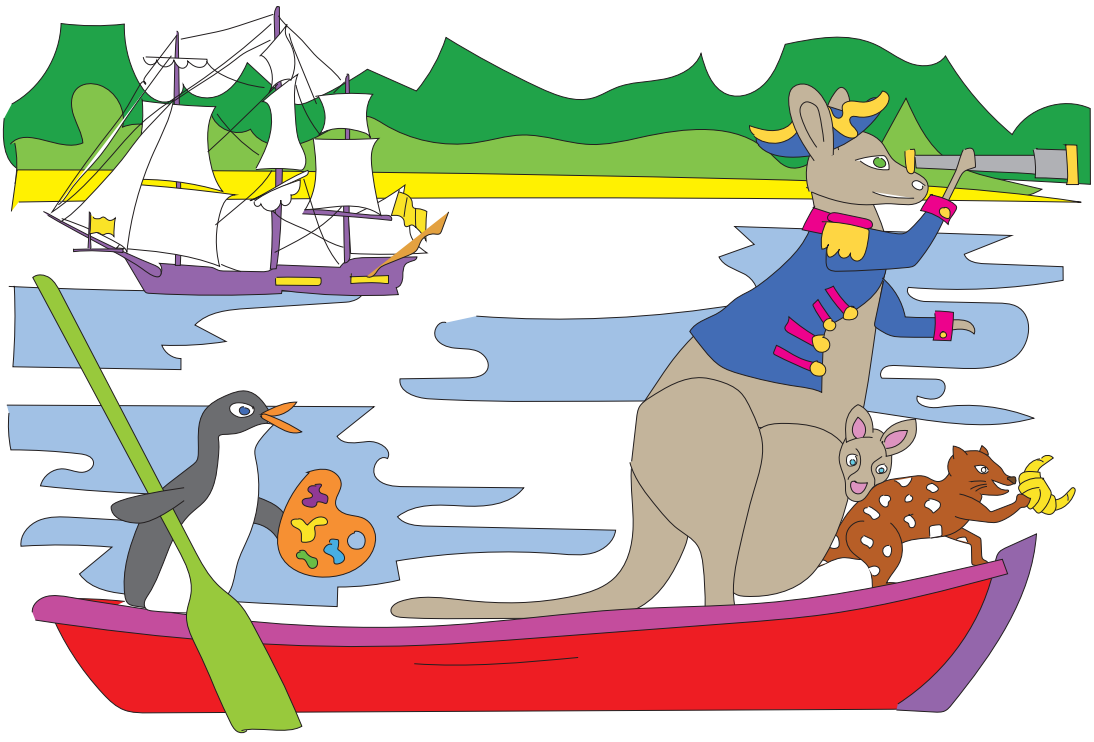
Choose a location outside- your garden, the park etc.

Draw the outline of your location from an AERIAL PERSPECTIVE, that means, the way it would look from a birds-eye view from above.

Add in important LANDMARKS – the tallest trees, a the swing set, flowers, bodies of water, a park bench, anything that is big and noticeable.

Add in some colours on your map- greens for the shrubs, blues for the water, sand, dirt and so on.

Imagine you are exploring this location for the first time.
- What would you call the different things you see?
- How would you describe them to someone who had never seen this place?



VIDEO INSTRUCTIONS AND MORE VISIT SEA.MUSEUM/CREATIVE-KIT

EXPLORER'S JOURNAL & ORIENTEERING

ACTIVITY 2. LEARN TO USE YOUR COMPASS

Stand in a starting location (mark this spot with an X or a rock).
Mark the coordinates for where you are on your map (see above for drawing a map first if you haven't already).
How do you know what the coordinates are? Use your compass!

COMPASS BASICS

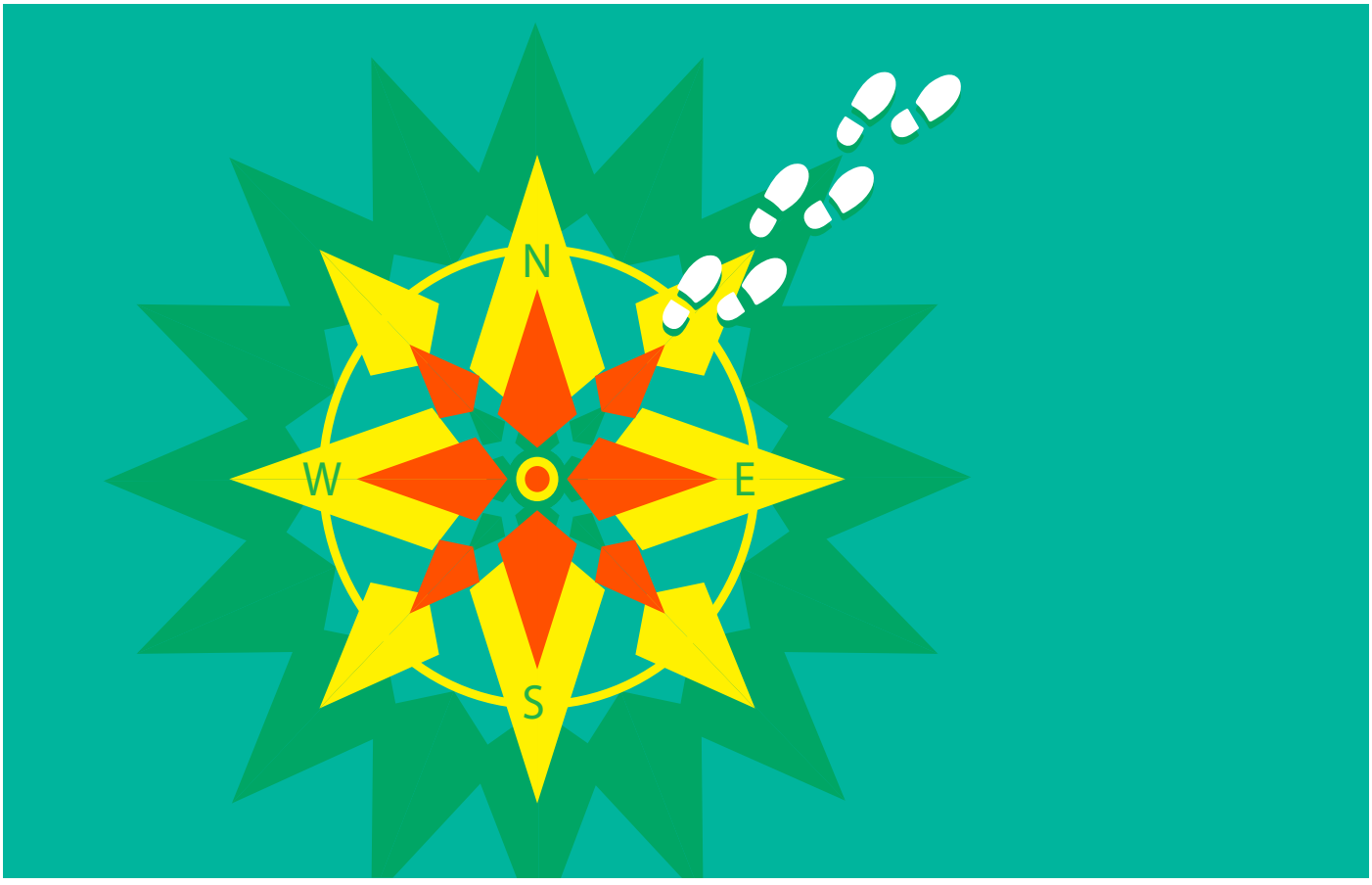
- Like reading a clock – we go clockwise
- Compass rose has 4 directions- north, south, east, west
- The compass always points north (magnetic north – because the earth has magnetic fields and north and south magnetic poles)
- Keep the compass straight in front of you
- You can add degrees to coordinates if you wish- or just use north/ north east etc
- Test your skills- take 3 steps north, take 4 steps east, practice following directions.

NOW USE IT FOR ORIENTEERING

Make a pathway to 5 or 6 stops in the location.
At each location mark the coordinates on the map and the direction you travelled to get there eg 5 steps north-east.

Plant some stop tags at the various locations and a treasure box at the final location.
Now start a game.

Hand the map and the compass to someone else in your household or a group of friends.
Set a stopwatch to allow 10 minutes for the hunt.



MU SEA UM

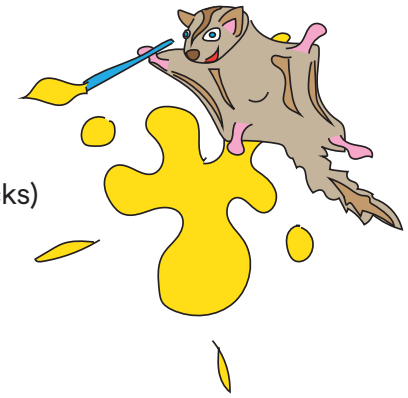
EXPLORER'S JOURNAL & ORIENTEERING

ACTIVITY 3. SCIENTIFIC SKETCHING

STEP 1- PRACTICE- Drawing challenges

See if you can find and sketch all of these in your sketchbook. If it's something you can pick up and take away you might want to paste in the real item alongside your drawing.

- A flower
- A leaf
- A seaweed or aquatic plant
- An insect or sea shell
- An interesting texture
- Something that makes you smile
- Something you didn't expect to see today



MATERIALS FOR STEP 2

- Collected specimens – pressed onto paper or pinned onto foam
- A pair of proportional scale dividers (or make your own with chopsticks)
- Paper
- A variety of pencils

STEP 2- DRAW ITEMS AGAIN AS A SCIENTIFIC ILLUSTRATION

Now it's time to re-draw some of your items as a scientific illustration.
Scientific illustration is not aiming at creating the most beautiful or creative picture, its using drawing for documentation .
It should be **Accurate Big Colourful Detailed**

We learn from an early age to associate abstract images and symbols with real objects- eg 3 triangles piled up = a pine tree. Humans are very good at imagining things and filling in the assumed details of a picture/ object/place. Scientific illustration is about UN-LEARNING these symbols and sketching from OBSERVATION, what we see, how it really looks.

It is learning to really SEE things. To wonder. To observe the tiniest of details.

Our proportional scale dividers can be used as we draw to help us get a sense of scale when we draw-measure the specimen – height, width, how far in various features appear etc and jot those measurements on your paper as you begin to draw. If you don't have scale dividers, use your thumb and fingers to measure the aproximate proportions of what you are drawing.

You may wish to **SCALE UP** the measurements of a very small specimen- double or triple their real size.

Add a ZOOM BUBBLE – to show the detail of a leaf, a vein, a hair etc

Add **LABELS** as you go to give more details and information about what you see.

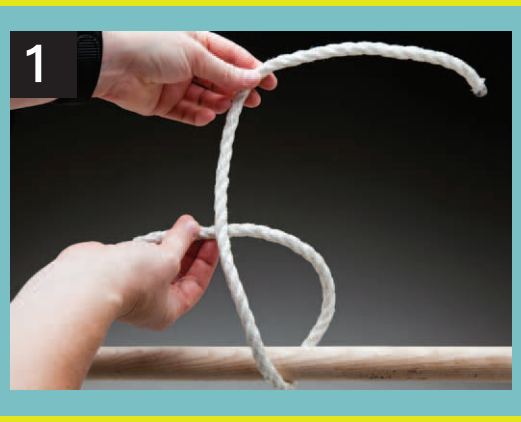
Write some **" I WONDER...."** questions about your sample.

KNOTTIN' TO LEARN 'ERE

The double half hitch

Useful fer tyin' yer hammock to a beam. Yaaarwhn!

FOLLOW THE STEPS

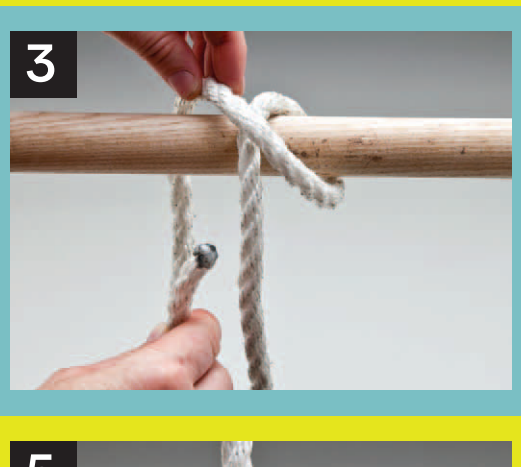


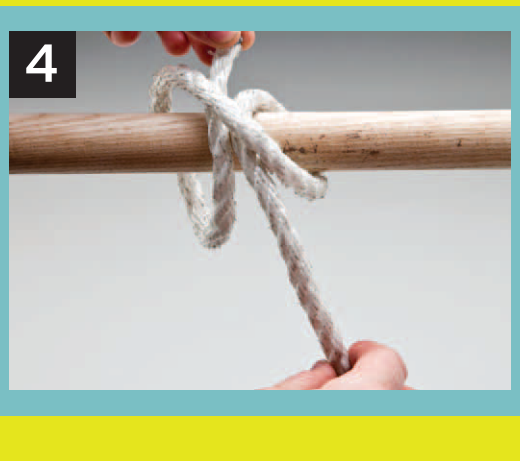
KNOTTIN' TO LEARN 'ERE

The clove hitch

Useful fer keepin' yer swag on board.

FOLLOW THE STEPS





KNOTTIN' TO LEARN 'ERE

The reef knot

Fer makin' one long rope.

FOLLOW THE STEPS

KNOTTIN' TO LEARN 'ERE

The slip knot

Useful fer a quick tyin' and a quick away. Arrgh!

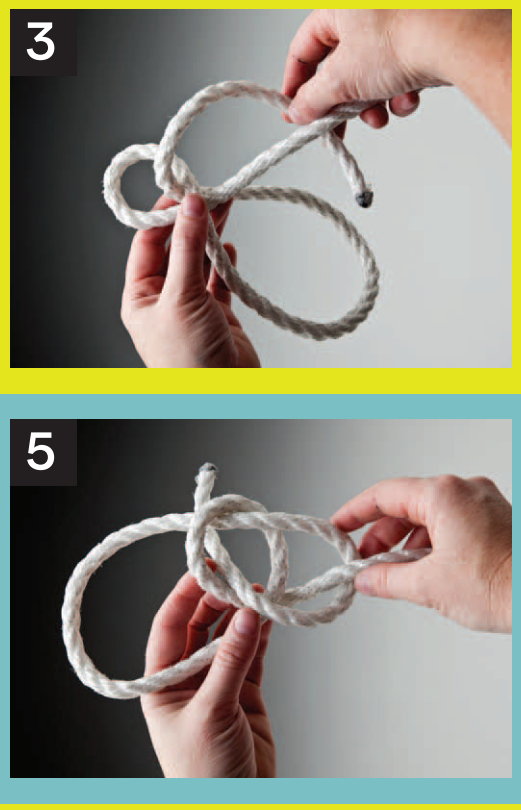
FOLLOW THE STEPS

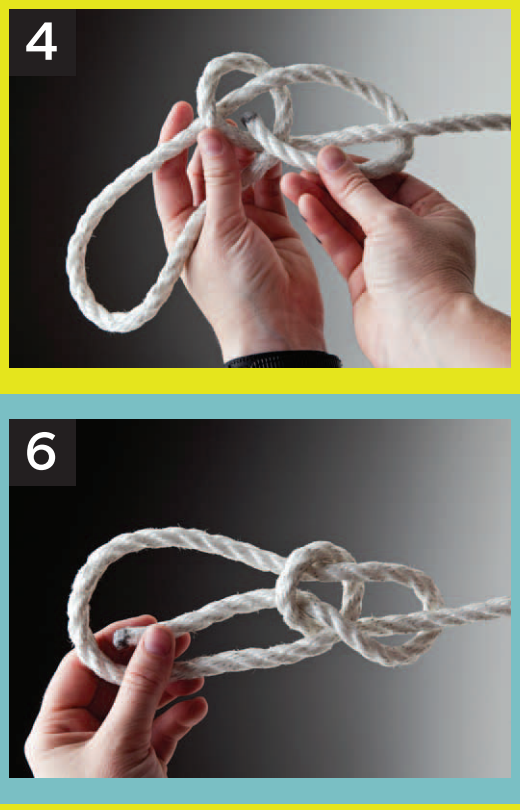
KNOTTIN' TO LEARN 'ERE

The bow line

Tie a loop that'll never move!

FOLLOW THE STEPS





KNOTTIN' TO LEARN 'ERE

The figure eight

Useful fer stoppin' yer ropes.

FOLLOW THE STEPS