

Common Life in the Marine Biome

Instructions:

Scientists use dichotomous keys to organize and identify specimens.

Dichotomous means dividing into two parts – a dichotomous key provides two choices in each step.

For example: to divide a package of multi-coloured pens into two groups, you might decide to divide the pens by “has blue ink” and “does not have blue ink”.

Work together at each station and use the available tools and key information to identify the different specimens. Record your answers on your results page.

Station 1 – Echinoderms

1. a. Specimen has arms.....go to 2
b. Specimen does not have arms.....go to 4

2. a. Specimen usually has 5 arms.....go to 3
b. Specimen usually has more than 5 arms (when intact).....Common sun star

3. a. Specimen has a central, armoured disc with long, thin arms.....Daisy brittle star
b. Specimen does not armoured disc, and has large, thicker arms.....Sea star

There are different species of sea star in Nova Scotian waters. Often, the easiest identification relates to colour. For example, the northern sea star and Forbes’ sea star can both have colorful bodies (purple, tan, red, etc.), however the northern sea star has a pale yellow madreporite and the Forbes’ sea star has a bright orange madreporite.

4. a. Specimen is round and flat with short, fuzz-like spines (live) or smooth without spines (dead).....Sand dollar
b. Specimen has a dome shape with long, thicker spines (live) or lacks spines (dead).....Green sea urchin

Station 2 – Gastropods

1. a. Specimen has a spiraled shell.....Go to 2
b. Specimen does not have a spiraled shell.....Go to 7

2. a. Specimen has smooth, globe-shaped shell with 4-5 body whorls, and a low, rounded spire. Umbilicus is large, round and deep.....Northern moon snail
b. Specimen does not have an umbilicus.....Go to 3

3. a. Specimen has a squat, rounded spiral shell.....Go to 4
b. Specimen has an elongated, spiral shell.....Go to 6

4. a. Specimen has a pointed spire.....Go to 5
b. Specimen has a rounded spire.....Smooth periwinkle

5. a. Specimen has medium to thick inner lip.....Common periwinkle
b. Specimen has a thin inner lip.....Rough periwinkle

6. a. Specimen has seven – ten+ thick reddish-brown spiral cords on shell.....Wrinkle whelk
b. Specimen shell has nine – fifteen+ raised waves (axial ribs) on each whorl.....Waved whelk

7. a. Specimen has a cap-shaped, smooth shell, with underside half covered.....Common Atlantic slippersnail

Station 3 – Bivalves

1. a. Specimen has wedge shaped shell.....go to 2
b. Specimen does not have wedge shaped shell.....go to 3

2. a. Specimen has front end tapered, and umbo near front end, on the side of the shell.....Northern horse mussel
b. Specimen has front end pointed, umbo at front end.....Blue mussel

3. a. Specimen has fan shaped shell.....Sea scallop
b. Specimen does not have a fan shaped shell.....Go to 4

4. a. Specimen has a long, thin shell with a slight curve.....Atlantic jackknife clam (or razor clam)
b. Specimen has an irregular, uneven, thick shell.....Oyster

Station 4 – Crustaceans

1. a. Specimen has 5 pairs of legs (including first pair with claws).....Go to 2
b. Specimen does not have 5 pairs of legs.....Go to 5

2. a. Specimen has abdomen with 6 segments that are visible from above.....American lobster
b. Specimen does not have abdomen with 6 segments that are visible from above.....Go to 3

3. a. Specimen usually has 5 large “teeth” to the side of each eye socket, along the carapace.....Green Crab
b. Specimen usually has more than 5 large “teeth” to the side of each eye, along the carapace.....Go to 4

4. a. Specimen has *rough* marginal “teeth” on edge of carapace.....Jonah crab
b. Specimen does not have *rough* marginal “teeth” on edge of carapace.....Rock crab

5. a. Specimen is attached to substrate and has a shell formed of 6 calcareous plates.....Acorn barnacle (*Semibalanus balanoides*)