**Activity: Finding north using the sun**

**Learning intention:**

* Finding direction with the sun.
* Develop numeracy, observational, and problem solving skills.

**Description:**

Using shadow sticks:

* Place a stick upright in the ground – or use flag posts or fence posts, or the students themselves.
* Mark where the end of the shadow falls
* Repeat the marking some time later (15 min, 30 min, 60 min)
* Draw a line between the two markers. This is the west/east line.
* Draw another line at right angles to the west/east line, this is the north/south line.

Using an analogue watch:

* Point the 12 of an analogue watch towards the sun.
* Estimate the halfway point between the 12 and the hour hand. This is true north.

**Safety considerations:**

* Use location where there is enough room for everyone to move around easily and comfortably
* Ensure teacher/supervisor can see all students
* Dress for the conditions

**Equipment:**

* Enough sticks so students can work in small groups to set up shadow sticks.
* Small objects to use as markers (students can use things they find in the area, e.g. stones, leaves, pine cones).
* Enough analogue watches for students to work in small groups (students can draw watch faces if no watches are available).

**Location:**

* Any open space where students can move around comfortably and easily, e.g. school grounds.

**Time:**

* The shadow stick method needs a time interval of at least 30 minutes to mark the shifting shadow.

**Student processing/reflection:**

* Identify east, west and south in relation to north
* Identify physical features that lie to the east, west, south and north of where the students are standing.
* What difference does daylight saving make?
* Why does the shadow change length?
* Which shadow marks real mid-day/north?
* Why doesn’t this coincide with our clock or compass?

**Possible adaptations:**

* Observe shadows of a range of objects at different times of the day.
* Shadow tag – Tag someone else’s shadow with your own.
* Experiment with making shapes with your shadow, individually and in groups.
* Mirror shadow – copy someone else’s shadow with your own.
* Discuss what life would be like without shadows.

***Acknowledgments***

*Adapted from Hillary Commission. (1995). Kiwi Outdoors.*

*New Zealand Mountain Safety Council (2010). Bushcraft: Outdoor skills for the New Zealand Bush. New Zealand Mountain Safety Council*