

# Natural Numbers

## Buffalo Creek Reserve - Year 8 Mathematics

School name:

School phone:

Organising teacher - first name:

Organising teacher - last name:

Email:

Mobile:

Excursion program list:

Natural numbers

Start time:

9.30

Finish time:

2.15

1st date:

Approx student numbers:

Number of classes:

Participating staff and email addresses:



## Teacher checklist

**Location** – Buffalo Creek Reserve, eastern side of Pittwater Road, East Ryde.

**Bus access** - give supplied access information to driver. No bus entry into Buffalo Creek Reserve. Please note council parking fees now apply.

**Cost** - DOE \$18.00 per student, no GST.  
Non Gov School Cost: \$28 per student (GST free, minimum charge \$550)

**Bring** - essential items only: medications, food, water, sunblock, hat and raincoat in a small backpack. There are no shops nearby.

**Clothing** - sports uniform recommended. Hats and sturdy closed shoes essential for all visitors.

**Staffing** - classroom teachers will be involved in all activities including rugged bushwalking.

**Extreme or wet weather** - may result in the excursion being modified, postponed or cancelled. This includes days predicted to be above 35°C, high winds, extreme bush fire danger and dust storms.  
Ph: 98161298

**Cancellations** - less than two weeks notice \$100. This does not apply to cancellations due to weather.

**Medical or special needs** - please notify EEC staff.

**Limited bin access** - all student waste will be taken home by students so 'nude food' containers are encouraged.

**Student welfare** - students will be outdoors all day, carrying their bag in rugged terrain. Therefore this excursion may not be suitable for:  
- students who have been recently unwell.  
- staff and students with limited mobility

## Learning activities

Students rotate through three fieldwork sites and undertake simulation style activities within the context of managing an urban national park.

**Student work teams** - students will be working in teams of 3. Please plan for this.

**Mangrove site** - students:

- apply understandings of measurement and formula to estimate the cost to replace the upper timbers of the Buffalo Creek boardwalk
- use a belt transect and quadrats to quantify the distribution and abundance of crabs for a species impact statement
- calculate the mean crab abundance using the Numbers app (similar to Excel) on iPads
- calculate the total area of the mangrove study zone.

**Sugarloaf site** - students:

- apply Pythagorean geometry and large scale measurement using clinometers within the context of gathering spatial data for a development application
- use the Field Protractor app on iPads to cross check their results
- reflect on the strengths and weakness of the two methods and capture this in a short video filmed on the iPad

**Bushland site** - students:

- plan a scientific investigation to quantify differences in invertebrate diversity along a bush track
- measure out survey zones and collect invertebrates in a self-controlled timing and manner
- create iPad spreadsheets using the Numbers app for the collation of the invertebrate survey data collected
- perform basic statistical processing and graphing of the collated data.

**Great North Walk site** - students:

- use mapping techniques and formulae to estimate distances along the tracks in the park.

## Communicating mathematically

Students use the iPad camera to record a verbal report summarising the contexts of their investigations and methods used. They then analyse their results, compare and contrast different methodologies and suggest further investigations.

The students' worksheets have critical language highlighted so the students can plan a precise report structure that can be used as assessment by teachers.

## Mathematics K-10 syllabus content

Excursion activities are designed to balance the acquisition of knowledge, understanding and skills within the specific processes of learning.

Specifically the:

Working Mathematically process strand:

- Communicating
- Problem solving
- Reasoning
- Understanding

Mathematics content areas:

- Number plane
- Statistics
- Trigonometry
- Ratio
- Formula
- Measurement
- Volume and area
- Scale and mapping
- Pythagorean geometry
- Surveying