Classification

Teacher Toolkit
Stage 2

OUTCOMES CONTRIBUTED TO:

ST2-2DP-T

ST2-1WS-S

ST2-4LW-S

Welcome to the Sydney Zoo Teacher Toolkit

Our vision is to secure a sustainable future for wildlife through making connections between your students and our animals.

'Bringing Nature into a classroom can kindle a fascination and passion for the diversity of life on earth and can motivate a sense of responsibility to safeguard it'.

Sir David Attenborough

What is in this toolkit:

- Syllabus-linked pre-visit activities
- Resources for guided and self-guided visits to the Zoo to ensure your students get the most out of their visit
- Post-visit, syllabus-linked class project
- Links to provide further information

Resources required to best use this toolkit:

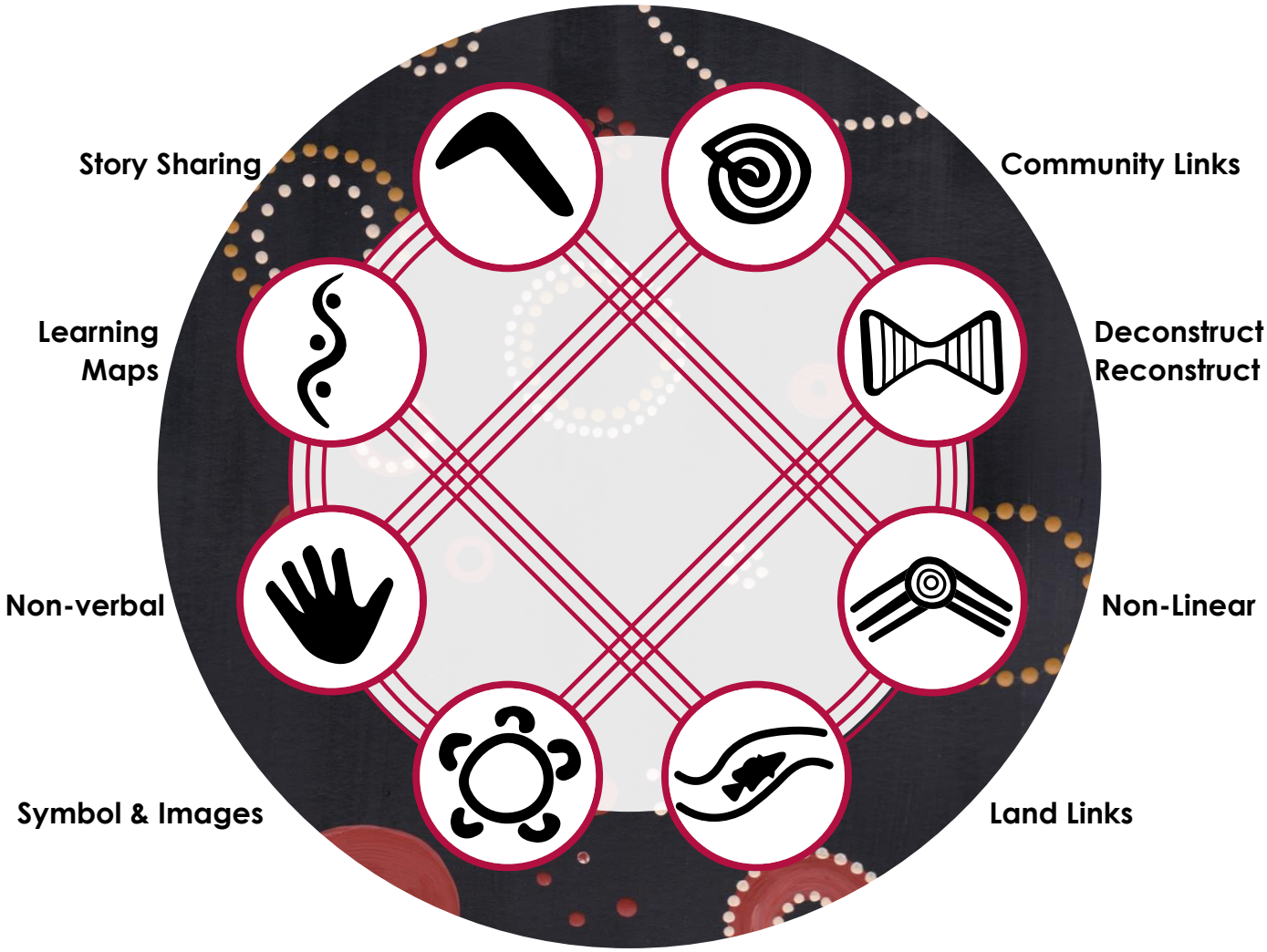
- Computer and screen or smartboard
- Internet access
- Access to playground/outdoors area where possible

Sydney Zoo acknowledges the Darug nation, their people, past, present and their future generations.

Outcomes and content

Stage	Outcomes	Content
	Science and Technology Skills A student: **ST2-1WS-S** questions, plans and conducts scientific investigations, collects and summarises data and communicates using scientific representations **ST2-2DP-T** selects and uses materials, tools and equipment to develop solutions for a need or opportunity **Knowledge and Understanding:** A student: **ST2-4LW-S** compares features and characteristics of living and non-living things	**Skills Focus** **Working Scientifically** **Planning and conducting investigations** • plan scientific investigations with guidance • use appropriate materials and equipment safely (ACSIS054, ACSIS065) • participate individually and collaboratively with clear roles and goals **Processing and analysing data** • suggest possible reasons for findings (ACSIS215, ACSIS216) **Design and Production** **Identifying and defining** • define a need or opportunity according to functional and aesthetic criteria • consider potential resources in defining design needs and opportunities • investigate and research materials, components, tools and techniques to produce design solutions (ACTDEP014) **Researching and planning** • identify and define a design problem with consideration of practical and aesthetic needs • consider sustainable use of resources and time constraints in planning design solutions • develop, record and communicate design ideas and decisions using appropriate technical terms **Content** **Classification of living things** **Inquiry question:** How can we group living things?
	Geography A student: **Skills:** Acquiring geographical information Processing geographical information Communicating geographical information **Tools:** Maps Spatial technologies Visual representations **GE2-4** acquires and communicates geographical information using geographical tools for inquiry	**Key inquiry question** • How and why are places similar and different?

Aboriginal Pedagogy
8Ways of Learning



TELL A STORY. MAKE A PLAN.
THINK AND DO. DRAW IT. TAKE IT OUTSIDE.
TRY A NEW WAY. WATCH FIRST, THEN DO.
SHARE IT WITH OTHERS

From the 8Ways website https://www.8ways.online/

Sydney Zoo has developed this lesson package with a focus on Aboriginal Pedagogy for delivery of all content. Context for each lesson is provided in the lesson plans.

Recommended pre-visit lesson outline

Location & Duration	Outcomes & 8Ways	Learning Activity	Resources
Classroom 60+ minutes		8Ways context- explain to students that a learning map is a way to map their journey through the topic. Students can place goals and main ideas in their learning map to sow the knowledge and skills they will be obtaining through activities on the way. It is a visual representation of a learning journey.	
	8Ways **Learning maps**	**Activity 1:** **Explain** that the class will be going on an excursion to Sydney Zoo to investigate living things. **Look up** the Sydney Zoo Map. **Brainstorm** the kinds of things you will be learning at Sydney Zoo and about different animals.	**Map** https://sydneyzoo.com/zoo-map **Activity sheet** 'Learning map'
	8Ways **Land Links**	**Activity 2:** **Google Maps** Using Google Maps as a class or in small groups/individually. - Students find their school's location - Students find Sydney Zoo (700 Great Western Highway, Bungarribee) - How far away is the Zoo from school? How can you travel from one to the other? **SixMaps** - Students find their school's location in Sydney (can use search tool on top left to search for suburb or other location) - Zoom out to see the extent of green areas and built up areas around Western Sydney **Explain** that the dark green around Sydney are the national parks and areas of natural vegetation in the Blue Mountains. Can you find large areas of green inside Sydney? What kinds of animals may live there?	**Link** Google Maps https://www.google.com/maps **Link** Six Maps https://maps.six.nsw.gov.au/
 	8Ways **Non Verbal** 8Ways **Symbols**	**Activity 3:** Mapping Sydney Zoo – keep Six Maps open for this activity. Print out **Activity sheets** 'Mapping Sydney Zoo' (single sided) **Enquiry:** What is a map? - Can be a photo, drawing/sketch, diagram showing a specific area - Needs to have specific interpretation (so a simple photograph is not enough) - Can be big (global map) or small (school map) **What do maps have to have?** - BOLTS Border, Orientation (north pointer), Legend, Title, Scale **Students** to add BOLTS to the Sydney Zoo map. Use Six Maps and as a class decide on the scale. Can use the measuring tool. Use Six Maps to determine which direction is North – the orientation of Six Maps is North. **Students can bring this map to Sydney Zoo on their visit to extend on their learning – using it to navigate and explain direction and distance from exhibits.**	**Activity sheet** 'Mapping Sydney Zoo' **Link** Six Maps https://maps.six.nsw.gov.au/

Mapping Sydney Zoo

Every good map has BOLTS – Border, Orientation, Legend, Title and Scale.

Use the BOLTS below to make your map of Sydney Zoo.

Border

A **border** is an important part of a map. Draw a border around the map.

Having **orientation** is important to anyone reading the map so they know which direction one location is from another. Discover which direction North is at Sydney Zoo by using SixMaps then cut and paste this North pointer onto your map pointing in the right direction.

Legend

A **legend** shows what different colours or symbols mean. Cut this out and glue it to your map on one side. Underneath it add 3 items – Paths (use one colour) these can be drawn on in the white spaces between animals. Water – on the far left of the map is a large dam. A symbol for your favourite animal.

Title

A **title** gives the map meaning. It makes sure that people know what the map is showing. Add your own title to the top of the map.

Using a **scale** means you can measure how far two places are from each other on the map and know the distance in the real world. In this case each block is 1cm long. Use Sixmaps to find out the real-life measurements of Sydney Zoo. Glue this **scale** onto your map.

This is supposed to be a map of Sydney Zoo but it is missing a few important features. You will need to help us and add these features to this map.

Map of Sydney Zoo

Example of completed task

Legend:

- Pathways
- Water
- Favourite animal

This is supposed to be a map of Sydney Zoo but it is missing a few important features. You will need to help us and add these features to this map.

Optional pre-visit
Classification lesson outline

Location & Duration	Outcomes & 8Ways	Learning Activity	Resources
60+ minutes		8Ways context: connecting students with a place. Students will classify the things they find in the classroom and school grounds.	
 	8Ways **Land Links** 8Ways **Non verbal**	**Activity:** Students draw on previous knowledge and describe what it means to be a living thing: - growing, reproducing, breathing, eating, excreting • **Activity Sheet 'Classification'** **Part 1** Each student takes their pencil case and empties onto their desk. Ask them to group everything that is similar together. Like with like. Discuss what the students then did. Did people group by colour? Structure? Use? Get the students to repeat and try different groupings. Then divide these groups into smaller e.g. all pens are then split into blue and black pens, or by brand name. **Part 2** Students take activity sheet out into the playground with the class. - Find items in the playground - Practice grouping them	**Activity sheet** 'Classification'

Classification

Find a nice spot in the school yard and collect some items you find there.

E.g. sticks, leaves, rocks, feathers. List the items below.

Items

Now we will group them. Put the items that are most similar together in small groups. Write down what you have put together below or draw them in their groups.

Optional pre-visit
Branching key lesson outline

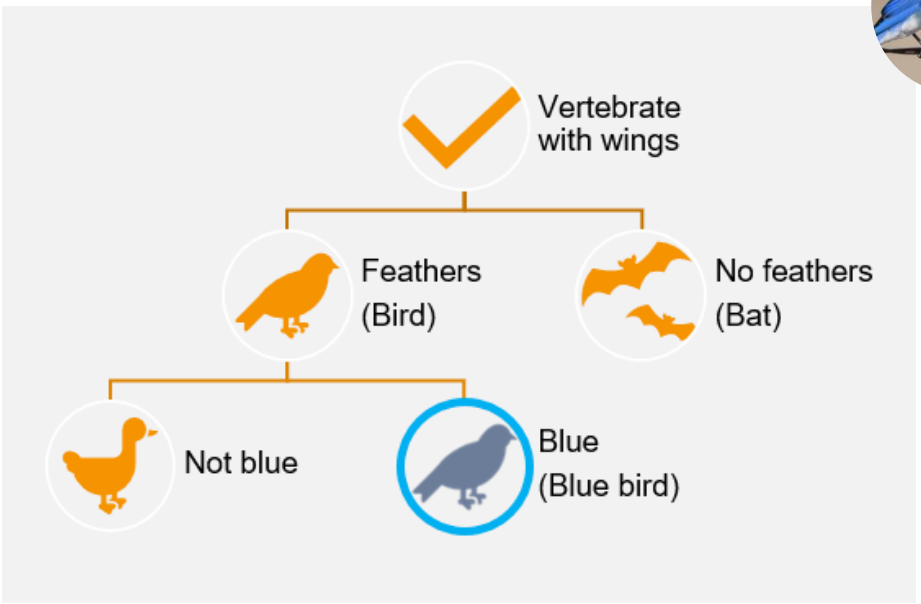
Location & Duration	Outcomes & 8Ways	Learning Activity	Resources
60+ minutes		8Ways context: connecting students with a place. Students will classify the things they find in the classroom and school grounds.	
 	8Ways **Land Links** 8Ways **Non verbal**	**Activity:** • **Activity Sheet 'Branching Key'** **Part 1** Read about what a branching key is and follow the example to classify the blue bird. **Part 2** Students find their item list from the playground or use their pencil case items again. Create their own branching key to classify items.	**Activity sheet** 'Branching Key'

Branching key

Here is an example of a branching key. We have found an animal, and we need to classify it.

A branching key:

- **Asks questions at each level based on features of an animal e.g. does it have feathers?**
- **Each split is a like saying yes or no e.g. yes it has feathers or no it does not**
- **You follow the branches until you have found your answer**



Create your own branching key for the items you found in the playground.

Visiting Sydney Zoo

Take your students on a self-guided adventure or book a workshop at Sydney Zoo! Download and print the Stage 2 Activity Booklet 'Classification of living things' to support student learning while visiting Sydney Zoo.

Pre-visit checklist:

- Pre-visit activities
- Behaviour expectations of students while visiting Sydney Zoo
  - Students must always be accompanied by a teacher
  - Follow instructions of your teacher and zoo staff
  - Take only photographs and memories, leave only footprints and smiles
  - If you get lost, find a staff member in uniform and tell them you need help
  - Have a lot of fun and ask lots of questions!
- Ask students to prepare low waste/waste free lunches if possible. We love seeing the students' being low waste/waste free – please brag about this to us
- Wet-weather preparation if the forecast is not favourable (some of our animals love wet days so don't worry about them hiding away)

Upon arrival:

- Send one staff member to check-in at Group Bookings desk - assemble classes with other staff members
- Enjoy your visit with us and please ask any staff for assistance if required
- Students must always be accompanied by a teacher

We recommend allocating small groups to adult supervisors. **Download** our '**survival guide for teachers**'

What is a low or no waste lunch?

- **Sourcing foods that have minimal or no packaging and using reusable containers to carry food.**
- **Bringing your own reusable drink bottle and refill it.**
- **Carrying your own reusable cutlery set.**

Examples

- Sandwiches - without clingwrap, they can stay fresh in a suitable reusable container or beeswax reusable wrap.

- **Fruit** - apples, bananas and mandarins are easy to eat and/or peel at school or the Zoo, the core and skin can go in the organic bins.
- **Nuts, dried fruit, biscuits, popcorn etc.** in a small reusable container, buy them in bulk to reduce packaging and put servings into small containers for snacks.

Optional post visit project lesson outline

Syllabus Inquiry Questions:

Living World: How can we improve a local environment to encourage living things to thrive?

CHOOSE CHANGE CONTRIBUTE

Location & Duration	Outcomes & 8Ways	Learning Activity	Resources
This project may extend over several lessons, days, or weeks	ST2-1WS-S ST2-2DP-T ST2-4LW-S	8Ways context for this project encompasses multiple methods. Brainstorming and creating a learning map of the process for project completion; breaking down each task and modelling for students; getting students to take action; approaching any problems from multiple angles with the class; creating land links for students by taking their learning outside; sharing what they are doing with the wider community of school and hopefully Sydney Zoo.	
	8Ways **Learning maps** 8Ways **Deconstruct/ Reconstruct** 8Ways **Symbols Actions** 8Ways **Land links** 8Ways **Non-linear** 8Ways **Community links**	**Premise:** While visiting Sydney Zoo you will have learned about sustainability, threats to wildlife and conservation efforts. What can students do to help?. Use the 'project planning scaffold' sheet to help with structuring your plan with students. At Sydney Zoo we ask what can people Choose, Change or Contribute to help wildlife. **Activity 1:** Set up a brainstorming session for students. Either on some butchers paper or on the board as a class. - What do students know about the environment at school? - Are there specific areas that have wildlife that live in them? Go out into the playground with the students and discuss the different parts of the school that they have seen living things in e.g. the grass, trees, birds, insects. Choose an area as a class to improve for wildlife **Activity 2:** What can you do to improve the environment to encourage things to thrive? Students research ways to improve the environment on the school grounds e.g. planting more native vegetation, regular rubbish pick ups, creating a low waste lunch system.	Butchers paper or smartboard/ whiteboard. **Project Planning Scaffold** **Ideas for research: Sustainable schools** https://www.sustainableschoolsnsw.org.au/manage/young-people/enviro-clubs-manual/project-ideas

Optional post visit project lesson outline (continued)

		Learning Activity	Resources
		Activity 4 Assign roles for the project if applicable - write down everything that is needed to complete the project - assign students to each task - if parents or external people are coming in to help your project assign students to each adult - **model** each task for the students (break down tasks and show students how to complete tasks) **Activity 5** **Complete project!** This may take an hour or it may be broken up over several sessions. **Activity 6** **Remember to take photos and videos throughout.** If you would like to share your project with the wider community, Sydney Zoo would LOVE to hear from you education@sydneyzoo.com	

Project planning scaffold for use as a class

CHOOSE
CHANGE
CONTRIBUTE

What is the problem/opportunity?

Can we Choose something more sustainable, Change something or Contribute time or funds?

Research first then create a plan

Create your project with appropriate tools, materials and safe practices

Evaluate your project – did you do what you set out to do?

Word bank

Word	Definition
Aboriginal and/or Torres Strait Islander Peoples	Aboriginal Peoples are the first peoples of Australia and are represented by over 250 language groups, each associated with a particular Country or territory. Torres Strait Islander Peoples are represented by five major island groups, and are associated with island territories to the north of Australia's Cape York which were annexed by Queensland in 1879. An Aboriginal and/or Torres Strait Islander person is someone who: • is of Aboriginal and/or Torres Strait Islander descent • identifies as an Aboriginal person and/or Torres Strait Islander person, and • is accepted as such by the Aboriginal and/or Torres Strait Islander community(ies) in which they live.
adaptation	The process of change by which a species becomes better suited to its environment.
built environment	The manufactured artefacts and surroundings that provide the setting for human activity.
characteristics	A set of distinguishing aspects (including attributes and behaviours) of a living thing, object or material. The characteristics of living things are often used to classify them and might include how they move or reproduce. When discussing materials the characteristics are the qualities used by humans to determine their use and the way people work with them. They might include colour, hardness and opacity.
classification	A category into which something is organised.
climate change	A long-term change in regional or global climate patterns eg annual precipitation, frequency of weather events.
climate graph	A graph showing average monthly temperature (by a line) and precipitation (by columns) for a location.
climatic zones	Refers to areas of the Earth that have similar temperatures. The major zones are hot, temperate and polar and are generally demarcated by lines of latitude. Within each zone there are different climates because of the effects of the distribution of continents and oceans and the circulation patterns of the atmosphere and oceans.
conclusions	An opinion or judgement based on evidence.
Country/Place	Country is a space mapped out by physical or intangible boundaries that individuals or groups of Aboriginal Peoples occupy and regard as their own. It is a space with varying degrees of spirituality. Place is a space mapped out by physical or intangible boundaries that individuals or groups of Torres Strait Islander Peoples occupy and regard as their own. It is a space with varying degrees of spirituality.
cultural groups	People belonging to or identifying with a nationality, ethnic group, religion or social group with a distinct culture.
culture	The customs, habits, beliefs, social organisation and ways of life that characterise different groups and communities.
designed solution	A product, service or environment that has been created for a specific purpose or intention as a result of design thinking, and design and production processes.
diversity	Differences that exist within a group, for example, age, sex, gender, gender expression, sexuality, ethnicity, ability/disability, body shape and composition, culture, religion, learning differences, socioeconomic background, values and experiences.

Word bank

Word	Definition
environment	The living and non-living elements of the Earth's surface and atmosphere. Where unqualified, it includes human changes to the Earth's surface eg croplands, planted forests, buildings and roads.
features	The tangible elements of a place or environment.
field sketches	Annotated line drawings created to record features of an environment during fieldwork activities.
habitat	The natural home or environment of an animal, plant, or other organism.
investigate	Carry out a systematic or formal inquiry to discover and examine information.
investigation	A scientific investigation is a systematic inquiry applying the processes of planning a course of action, safely manipulating tools and equipment in collecting and interpreting data, drawing evidence-based conclusions and communicating findings.
landscape	A landscape is an area, created by a combination of geological, geomorphological, biological and cultural layers that have evolved over time eg riverine, coastal or urban landscapes.
natural environment	An environment in which humans do not make significant interventions, for example ocean environments or national parks.
natural resources	Resources provided by nature. Resources can be classified as renewable, non-renewable and continuous. Also known as environmental resources.
natural vegetation	The vegetation that has evolved in an area over time.
perception	People's assessment of places and environments.
seasonal calendar	The classification of the weeks or months of the year into seasons eg spring, summer, autumn and winter, or wet and dry, or the classifications of Aboriginal cultures.
sketch map	A labelled drawing outlining the main geographical features of a place.
small-scale map	A map showing a large area of the Earth's surface with little detail eg world map where one centimetre on the map scale represents a large distance on the land.
sustainable	Supporting the needs of the present without compromising the ability of future generations to support their needs.
weather	The condition of the atmosphere at a point in time eg temperature, humidity.

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