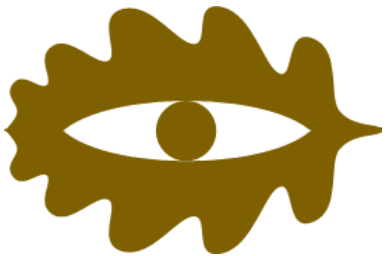


Bonsai On A Budget

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Nemeta Bonsai
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Learning Outcomes - Day 1

- ▶ Be aware of the history and culture of bonsai
- ▶ Understand (at a high level) how a bonsai is produced
- ▶ Understand (at a high level) what distinguishes good and bad bonsai
- ▶ Know how to maintain a bonsai on a day-to-day basis
- ▶ Experience the key activities of re-potting, pruning and wiring
- ▶ Be aware of inexpensive options for further learning and practice

Practical component

- ▶ Watering bonsai
- ▶ Wiring a bonsai pot for re-potting
- ▶ Exposing the nebari

Bonsai: What & Why

Defining bonsai

- ▶ A bonsai is a **living trompe-l'oeil**: a small tree that appears to be a scaled-down large tree.
- ▶ Almost any kind of tree can become a bonsai (plus a few things that aren't trees!)
- ▶ “Bonsai” traditionally referred to Japanese schools, but has become a generic term

Why 'Sai?

- ▶ Hands-on education in plant science!
- ▶ Learn to see extra layers of beauty in nature
- ▶ Good practical hobby with interesting culture
- ▶ Sense of control and responsibility

*To see a World in a Grain of Sand
And a Heaven in a Wild Flower
Hold Infinity in the palm of your hand
And Eternity in an hour*

- William Blake

Bonsai: A Potted History

China

- ▶ Daoist mysticism: recreation of magical sites in miniature
- ▶ Penjing (盆景) / Penzei (盆栽) = the art of miniature landscapes (pre 600AD)
- ▶ Popular amongst Buddhist monks, and - later - aristocracy
- ▶ Heavily impacted by Mao's Cultural Revolution: seen as a bourgeois pastime

Japan

- ▶ First records c. 1200AD; known as Hachi-no-Ki ("potted trees" - also the name of a famous play!)
- ▶ Heavy Zen / Chan Buddhist influence: beauty through austerity, sophistication in simplicity and perfection from imperfection ("wabi-sabi")
- ▶ Increasingly popular from 1800s onwards; term "bonsai" (盆栽 - "tray planting") adopted
- ▶ Development of distinct styles (dramatic archetypes)
- ▶ Hit hard by World War 2, but revived in the aftermath (partly from enthusiasm of GIs)
- ▶ Exported to West from 1960s onwards, in parallel with Japan's "economic miracle"

Bonsai: Art & Science

Good bonsai practice is:

- ▶ Authentic - makes you think “tree”
- ▶ Dramatic - makes you think “TREE”
- ▶ Pragmatic - doesn't make you think “*dead tree*”...



Pragmatism 1

How Not To Kill Your Tree

What Kind Of Tree Is A “Bonsai”, Anyway?

(Trick question alert!)

- ▶ Tree: *“a large, tall, woody, perennial plant with a single, unbranched, erect, self-supporting stem holding an elevated and distinct crown of branches with a total height greater than ten feet and a diameter greater than three inches”* - oy vey!
- ▶ Almost any tree species can be trained into a bonsai; many smaller plants can too
- ▶ Requirements for bonsai-ing:
 - ▶ Vascular plant (no mosses!)
 - ▶ Woody growth / “lignification” (no daisies!)
 - ▶ Secondary growth of trunk (no palms!)
 - ▶ Free-standing (no lianas!)
 - ▶ Deep roots (no grasses!)
- ▶ Desirable features
 - ▶ Attractive / interesting species
 - ▶ Small or pinnate leaves
 - ▶ Long-lived
 - ▶ Reasonably fast-growing
 - ▶ Easy to maintain / shape
- ▶ “Honorary” bonsai species
 - ▶ Woody climbers: ivy, wisteria, honeysuckle
 - ▶ Succulent / fleshy: dwarf jade, geranium
 - ▶ Chrysanthemum

I Had One Once, But It Died

What a bonsai needs to survive

- ▶ Environment
 - ▶ Indoor vs Outdoor
- ▶ Watering!!!!
 - ▶ Single biggest killer of bonsai
 - ▶ “Root hairs” die easily in drought
 - ▶ Over-watering is also dangerous!
- ▶ Light
- ▶ Heat
 - ▶ Dormancy
- ▶ Airflow
- ▶ Pest Control
 - ▶ Animals: spider mites, scale bugs, aphids, caterpillars, vine weevil, squirrels
 - ▶ Plants etc: pearlwort, liverwort, wood sorrel, pennywort, nostoc
 - ▶ Caution: environmental issues!
- ▶ Fertiliser
 - ▶ “Balanced”: roughly even NPK
 - ▶ Organic => micronutrients
 - ▶ Caution: environmental & ethical issues!
- ▶ Bonsai are far harder to keep alive than most common pot plants!

Watering Your Bonsai

No, seriously, this is important

Why so serious?

1. Trees usually have deep tap-roots to draw water; they don't handle drying out well
 - ▶ ...Especially conifers, for some reason
2. Good-quality bonsai soils / pots have really good drainage... so can dry off quickly
3. Bonsai soil is very compact and often moss-covered... so water tends to run off the surface
4. Traditional bonsai soil is inorganic, so lacks the "ladders" of plant fibre that let water rise up through the pot
5. Even gardening experts routinely kill their first bonsai!

Watering methods

- ▶ Put in bucket of water (to just below brim) and wait for water to bubble up
 - ▶ ...Then take out and allow to drain fully.
Never leave standing in water for long periods - roots need oxygen too!
- ▶ Water from above three times, allowing the water to sink in between passes

Is it watered enough?

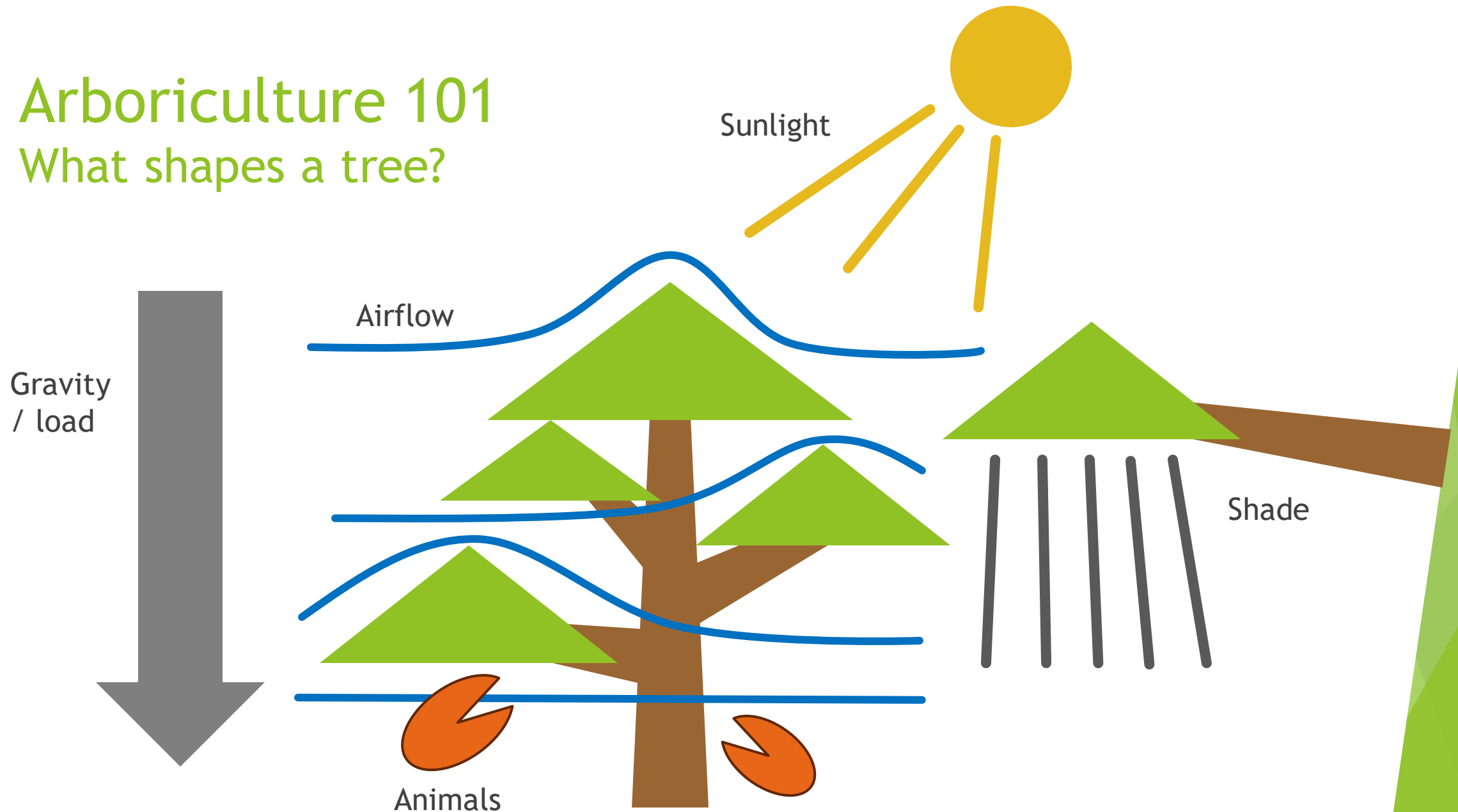
- ▶ Surface feels damp to back of hand
- ▶ Pot significantly heavier
- ▶ Water running out of hole in bottom when more is added

Authenticity & Drama

Thinking Like A Tree (That's Seen Some S**t)

Arboriculture 101

What shapes a tree?



Authenticity & Age

What makes a tree look mature?



► Taper

- “Nebari” (根張り) = root flare
- Trunk & branch flare: base to apex / tip
- Trunk-to-branch ratio

► Canopy shape

- Rounded triangle
- Composed of rounded-triangle “pads” (for species that back-bud less readily)

► Trunk & branch behaviour

- Short inter-node distance
- “Ramification”: fractal splitting of branches
- “Square-cube law”: big tree = proportionally heavier load = more curvature
- “Ruptures”: jagged direction changes

► Texture

- Bark
- Dead-wood: advanced bonsai topic!

The background features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and dynamic visual effect.

See You Tomorrow!

The background features abstract, overlapping green geometric shapes, primarily triangles and polygons, in various shades of green, creating a modern and dynamic visual effect.

Appendices

Miscellaneous Technical Notes

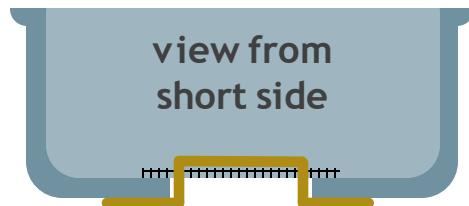
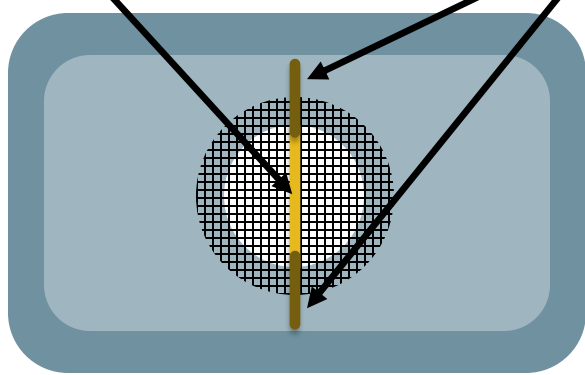
Wiring a Bonsai Pot

What could go wrong?

Mesh & Staple

(Plastic mesh, 2mm alum. wire)

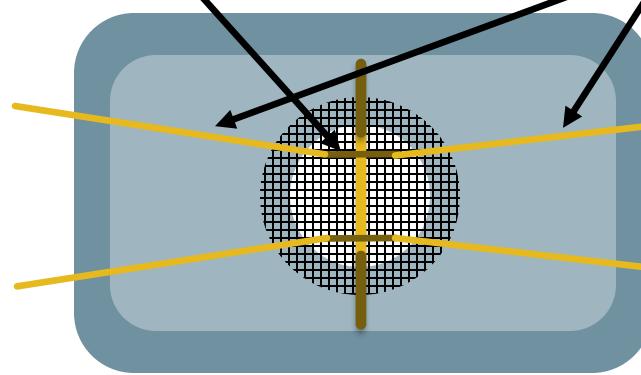
wire above mesh wire below mesh & pot



Guy wires

(1.5mm alum. wire x 2)

wire below mesh wire above mesh & along sides of pot



one side of each
wire longer than
the other



How Often To Water

Some key factors

Pot

- ▶ Depth: deep → less frequent
- ▶ Shape: bulbous → less, fluting → more
- ▶ Inner surface: glazed → more

Soil

- ▶ Drainage: well-draining → more
- ▶ Degradation: older → harder to water
- ▶ Covering(s): dead sphagnum and/or live moss → harder to water but slightly less (in theory)

Tree

- ▶ Maturity: older → less (in theory)
- ▶ Fertilisation: heavy → more
- ▶ Re-potting: recent → more

Environment

- ▶ Wind: windier → more
- ▶ Sun: sunny → more, shady → less
- ▶ Heat: hotter → more, colder → less
- ▶ Season: Winter = least, Summer = most
- ▶ Warning: these factors are “non-linear”! A small increase in e.g. sun can mean a big increase in watering.

...Mostly it's not worth the effort to figure out the “right” watering frequency. Just keep checking the pot every day!