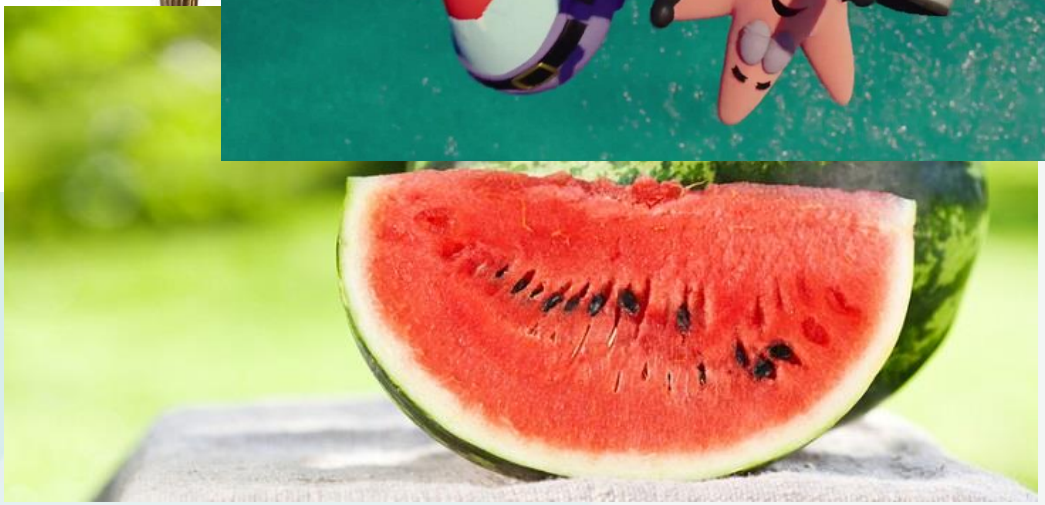

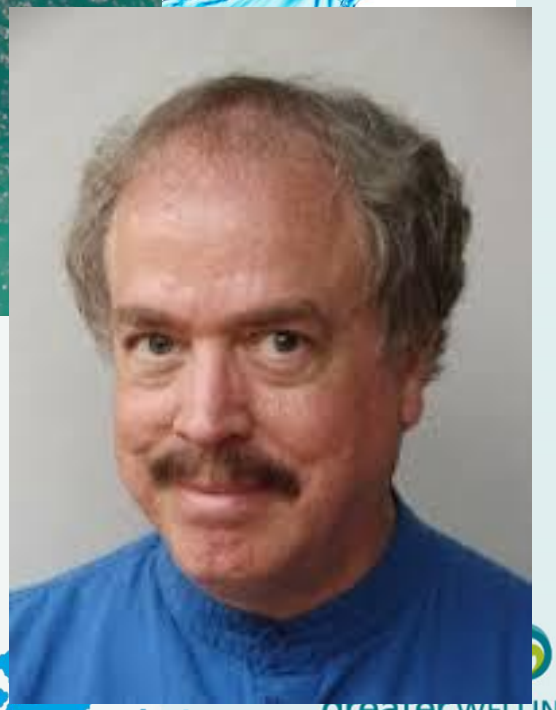

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What is an attribute?

- Describes a characteristic of a value
- Provides a way of assessing or measuring a value
- Similar to indicator, property, sign…
- Can be words and/or numbers
- Applies to fresh and coastal water

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Body Mass Index

Mood

Temperature

Hours of exercise each week

No. of sick days per year

BEING HEALTHY!!

Resting heart rate

Blood pressure

No. of fruit and vege servings per day

Hours of sleep each night

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What do we use attributes for?

- Attributes are tools to:
  - Set objectives with
  - Calculate water quality limits from
  - Test different scenarios
  - Monitor into the future

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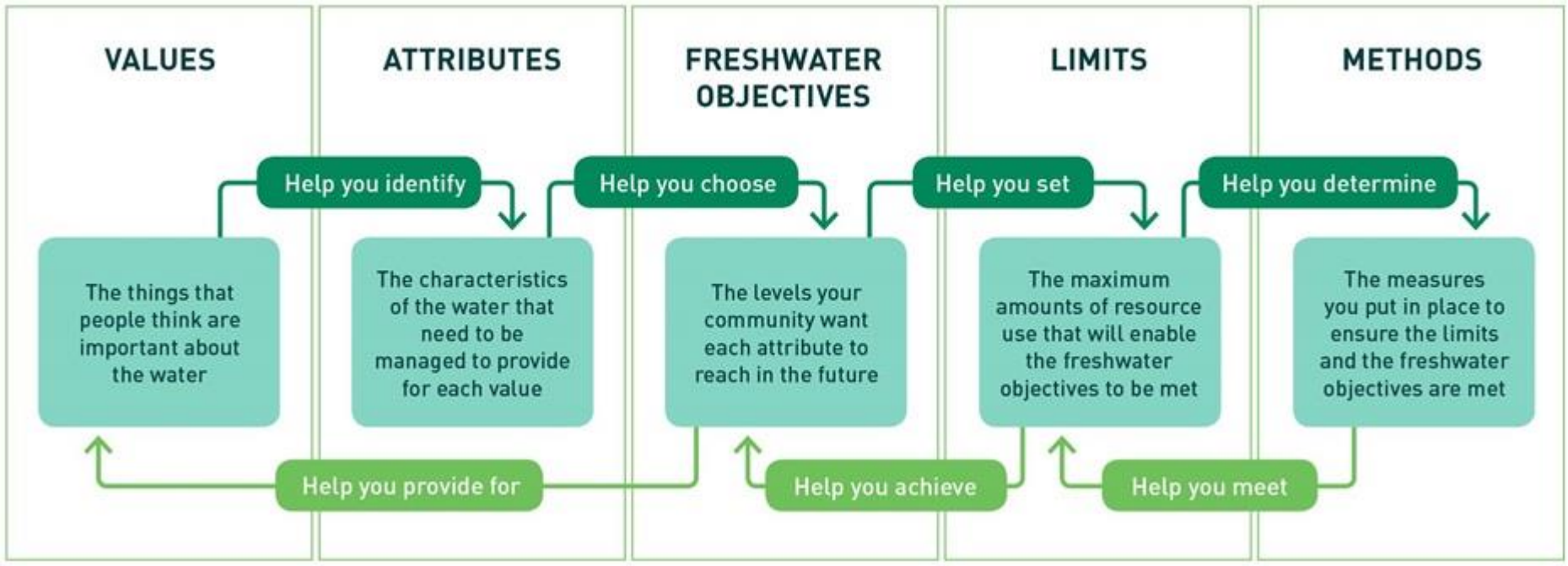
How do they fit in?



Source: Auckland Council
http://www.aucklandcouncil.govt.nz/EN/environmentwaste/Pages/aucklandsfreshwaterprogramme.aspx

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Choosing attributes

- Sufficient to tell us about values and impacts of management options on values
- Simple but robust group of attributes
- Working group to help identify and refine
- NOF gives us compulsory attributes

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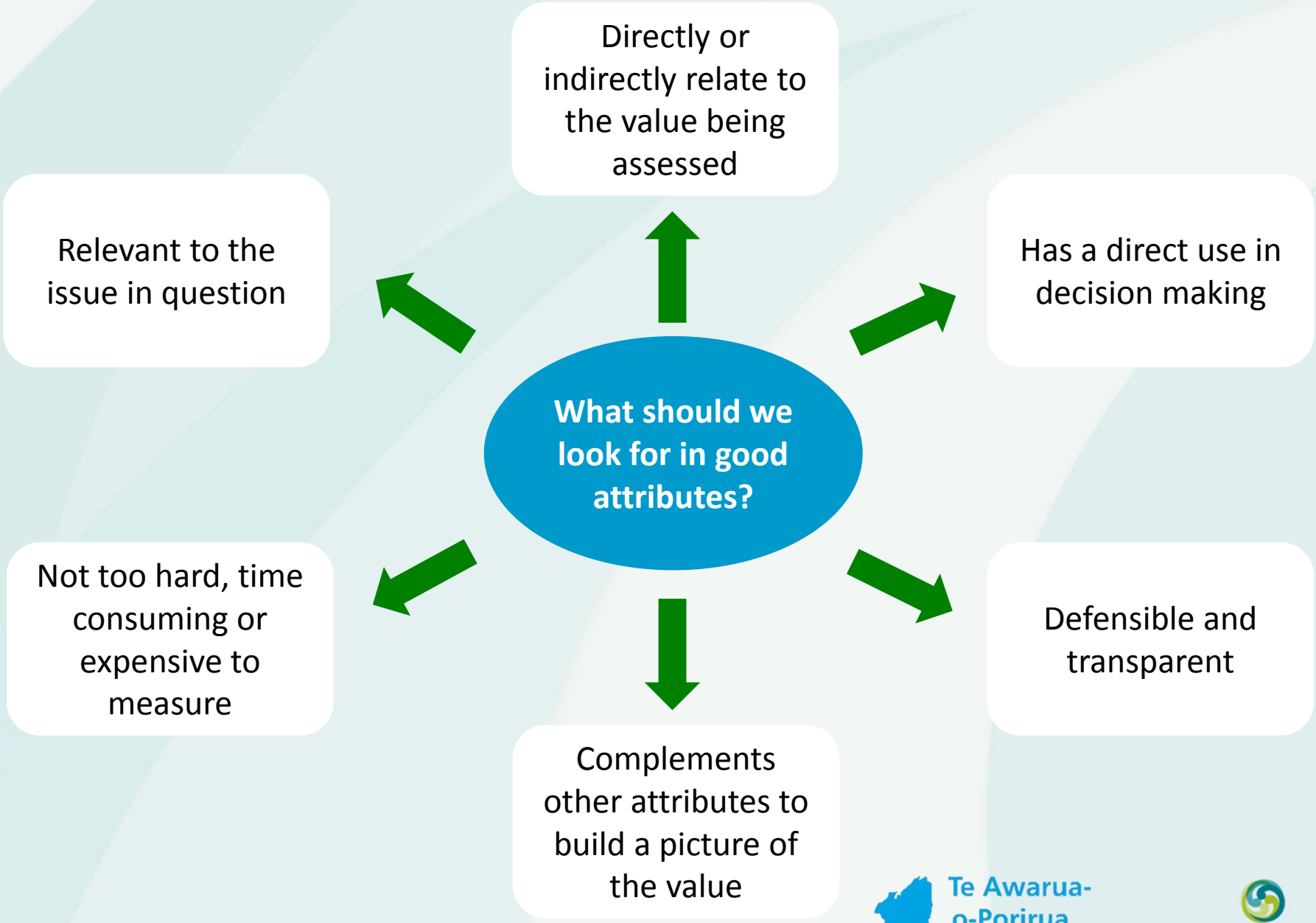

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‘Attribute states’

- Describe how well an attribute is faring
- Therefore, help us assess a value
- NOF = A/B/C/D attribute states
- Improvement needs different management response depending on current state

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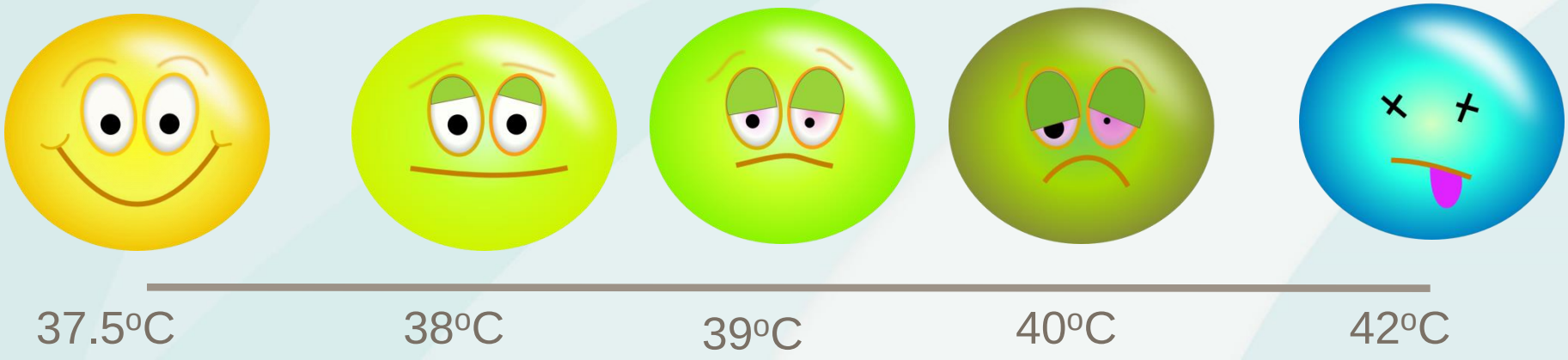
Attribute of human health: temperature



37.5ºC 38ºC 39ºC 40ºC 42ºC

Attribute states:

GOOD FAIR POOR CRITICAL

Objective!

Methods to reach objective:

- Time to take a day off work!
- Time to go to the doctor!
- Time to go to the hospital!

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NOF compulsory attribute of ecosystem health: periphyton (rivers)

Value	Ecosystem health		
Freshwater Body Type	Rivers		
Attribute	Periphyton (Trophic state)		
Attribute Unit	mg chl-a/m² (milligrams chlorophyll-a per square metre)		
Attribute State	**Numeric Attribute State (Default Class)**	**Numeric Attribute State (Productive Class[1])**	**Narrative Attribute State**
	Exceeded no more than 8% of samples[2]	**Exceeded no more than 17% of samples[2]**	
A	≤50	≤50	Rare blooms reflecting negligible nutrient enrichment and/or alteration of the natural flow regime or habitat.
B	>50 and ≤120	>50 and ≤120	Occasional blooms reflecting low nutrient enrichment and/ or alteration of the natural flow regime or habitat.
C	>120 and ≤200	>120 and ≤200	Periodic short-duration nuisance blooms reflecting moderate nutrient enrichment and/or alteration of the natural flow regime or habitat.
National Bottom Line	**200**	**200**	
D	>200	>200	Regular and/or extended-duration nuisance blooms reflecting high nutrient enrichment and/or significant alteration of the natural flow regime or habitat.

1. Classes are streams and rivers defined according to types in the River Environment Classification (REC). The Productive periphyton class is defined by the combination of REC "Dry" Climate categories (i.e. Warm-Dry (WD) and Cool-Dry (CD)) and REC Geology categories that have naturally high levels of nutrient enrichment due to their catchment geology (i.e. Soft-Sedimentary (SS), Volcanic Acidic (VA) and Volcanic Basic (VB)). Therefore the productive category is defined by the following REC defined types: WD/SS, WD/VB, WD/VA, CD/SS, CD/VB, CD/VA. The Default class includes all REC types not in the Productive class.

2. Based on a monthly monitoring regime. The minimum record length for grading a site based on periphyton (chl-a) is 3 years.

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Workshop activity: attributes for

Hauora kaiao, healthy organisms – Ecological health

Waterways brim with life and have diverse and healthy ecosystems.

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