Evaluating the Success of my Neuro-Cognitive Training Program

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Board Member/ Vice Chair

Dementia Alliance International

Younger Onset Alzheimer's Disease

Effects of my diagnosis

In July of 2019, at the age of 59, I was diagnosed with Younger Onset Alzheimer's Disease.

- Shell shocked
- Lost confidence in myself
- Disillusioned with life
- Withdrew from involvement in the wider community
- Darkness surrounding me

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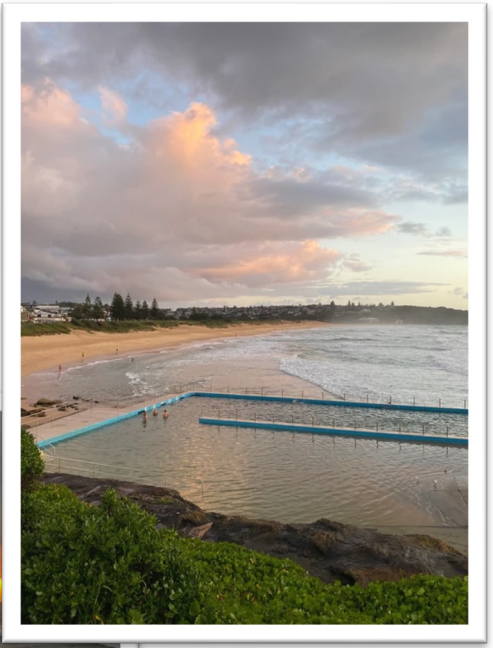
South Curl Curl Surf Lifesaving



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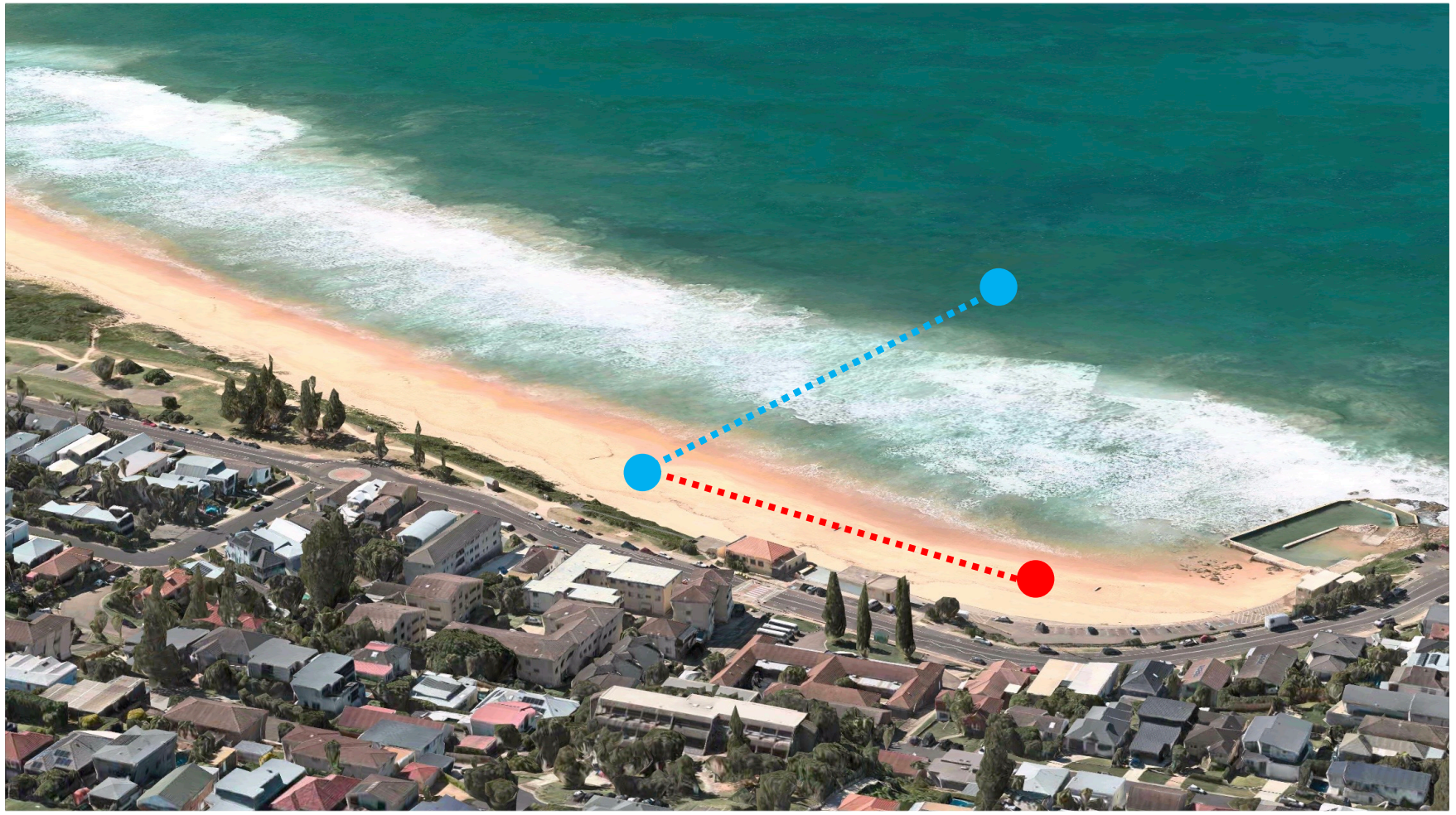

1. 100 metre run along sand
2. 100 metre swim to buoy
3. 100 metre swim back to beach (200 metre swim)
4. 100 metre run along sand

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My Way Forward

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My Presentation

My presentation today is about evaluating how my participation in this Neuro-Cognitive Training Program has allowed me to start competing in Master's Swimming and Surf Lifesaving (Open Water and Pool Rescue).

Due to its structured approach, I chose the Goal Attainment Scaling (GAS) method as I wanted to target the goals that I had set myself in relation to:

- The type of championships that I wanted to compete in (local, state, national and international)
- The type of events that I wanted to participate in
- The times/places that I achieved

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My Presentation

What is the Goal Attainment Scale (GAS)?

Each goal is rated using a five-point numerical scale where:

-2	much less than expected
-1	less than expected
0	expected level (baseline)
+1	better than expected
+2	much better than expected

Main Advantage

It has allowed me to track the progress of achieving my goals over a period of time.

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Goal Attainment Scaling

- Explanation of formula:

$$50 + \frac{10\Sigma(W_i X_i)}{\left[(1-\rho)\Sigma W_i^2 + \rho(\Sigma(W_i)^2)\right]^{\frac{1}{2}}}$$

- W_i is the weight assigned to each goal (relative importance x degree of difficulty using a scale of 1-3)
- X_i is the numerical value of the level of attainment
- ρ is the estimated correlation between the goal scores – assumed to have constant value of 0.3
- ΣW_i^2 is the sum of each weighted value squared
- $(\Sigma(W_i)^2)$ is the sum of all the weighted values squared

Therefore, based on this equation:

- If you only achieve your baseline, your score will be 50.
- If you achieve more than your baseline, your score will be greater than 50.

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Goals – Championships entered

- **Goal 1** - To be able to compete in masters Swimming Championships by the end of 2022
- **Goal 2** - To be able to compete (paddle a racing mal) in masters Surf Lifesaving Championships by the end of 2022
- **Goal 3** - To be able to compete in masters Pool Rescue Championships by the end of 2022

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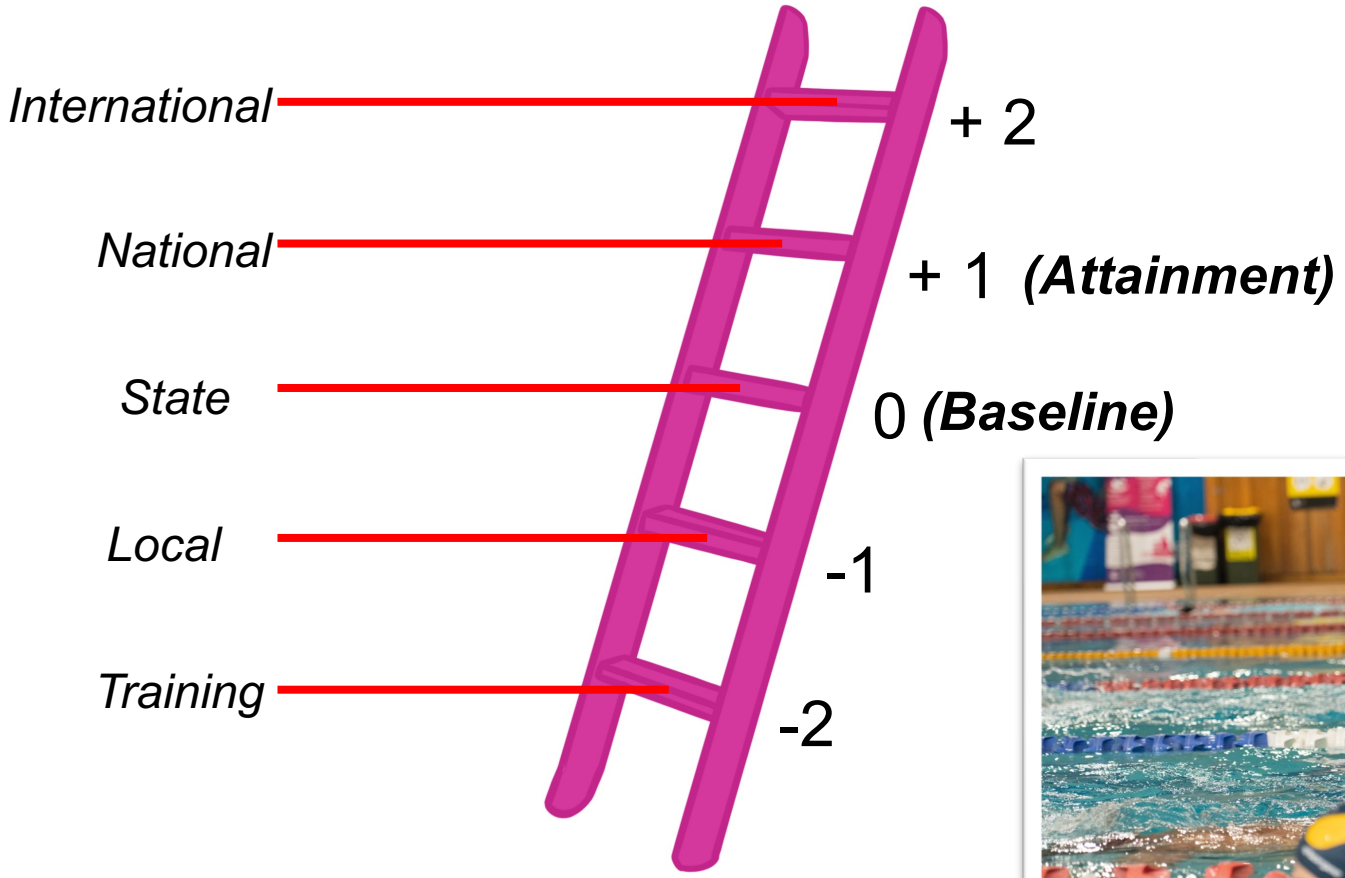
Goal Attainment Scaling

Goal 1 - To be able to compete in **Masters Swimming Championships** by the end of 2022



Goal Attainment Scaling

Goal 2 - To be able to compete **(paddle a racing mal)** in **Masters Surf Lifesaving Championships** by the end of 2022

International + 2 ***(Attainment)***

National + 1

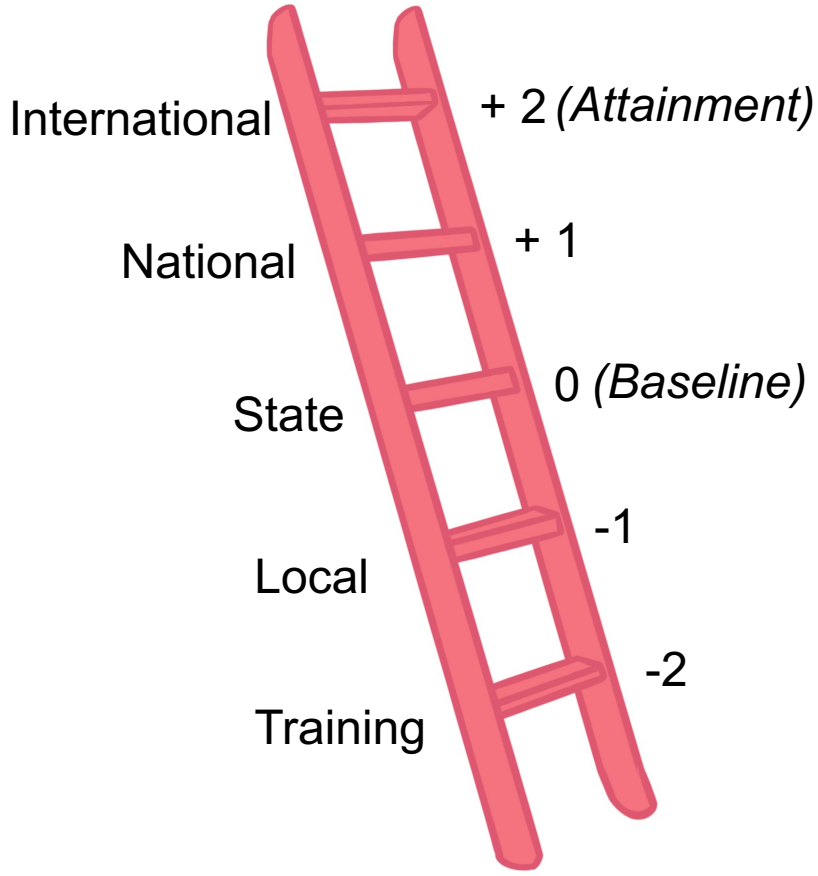
State 0 ***(Baseline)***

Local -1

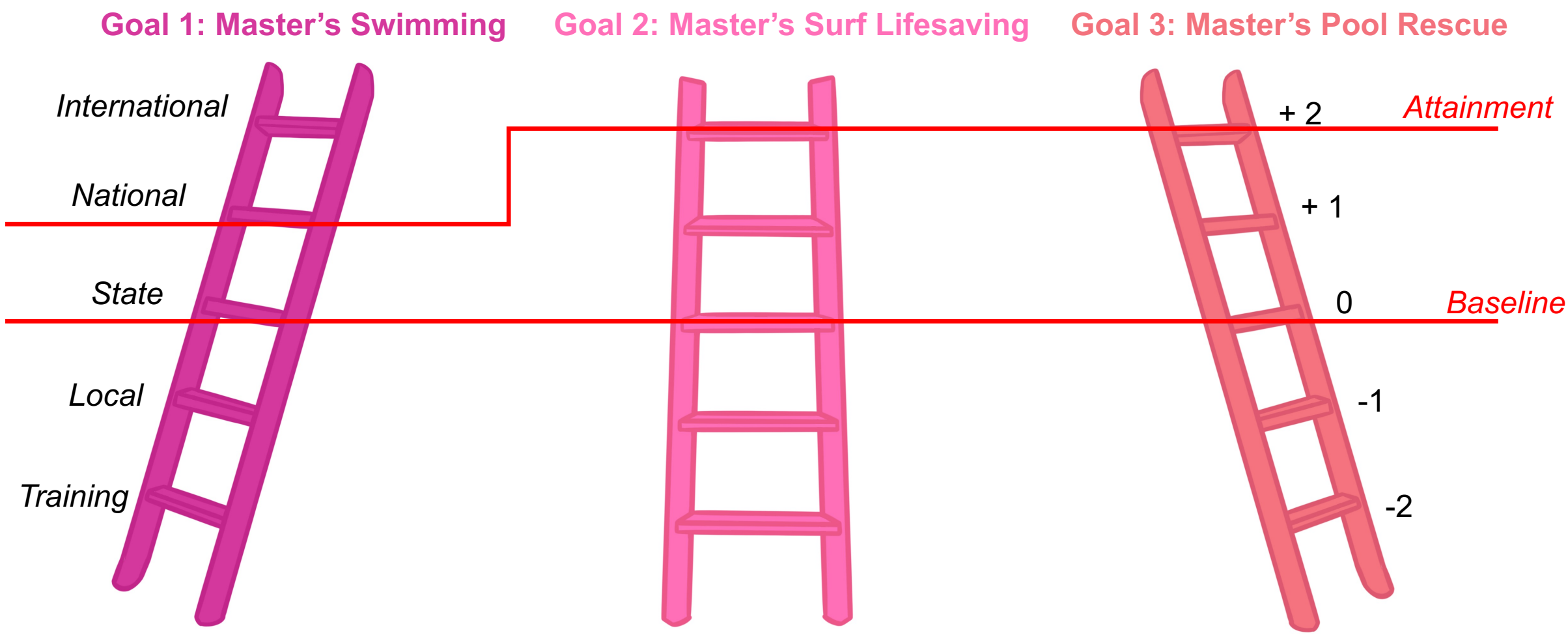
Training -2

Goal Attainment Scaling

Goal 3 - To be able to compete in **Masters Pool Rescue Championships** by the end of 2022



Goal Attainment Scaling



Goal Attainment Scaling - International Championships

	Importance	Difficulty	Weight (W_1)	Outcome (X_1)	$10\Sigma(W_1X_1)$	ΣW_1^2	$(\Sigma W_1)^2$
Goal 1	3	2	6	1	6	36	6
Goal 2	3	2	6	2	12	36	6
Goal 3	3	3	9	2	18	81	9
Total					360	153	$(21)^2 = 441$

$$50 + \frac{10\Sigma(6+12+18)}{[(0.7)(36+36+81)+0.3(21^2)]^{\frac{1}{2}}} = 50 + \frac{360}{[(0.7)(153)+0.3(441)]^{\frac{1}{2}}} \approx \mathbf{73.29}$$

Goals – Swim Distances

- **Goal 4** – To competitively swim 50 metres freestyle by the end of 2022
- **Goal 5** – To competitively swim 50 metres backstroke by the end of 2022
- **Goal 6** – To be able to competitively swim 50 metres butterfly by the end of 2022

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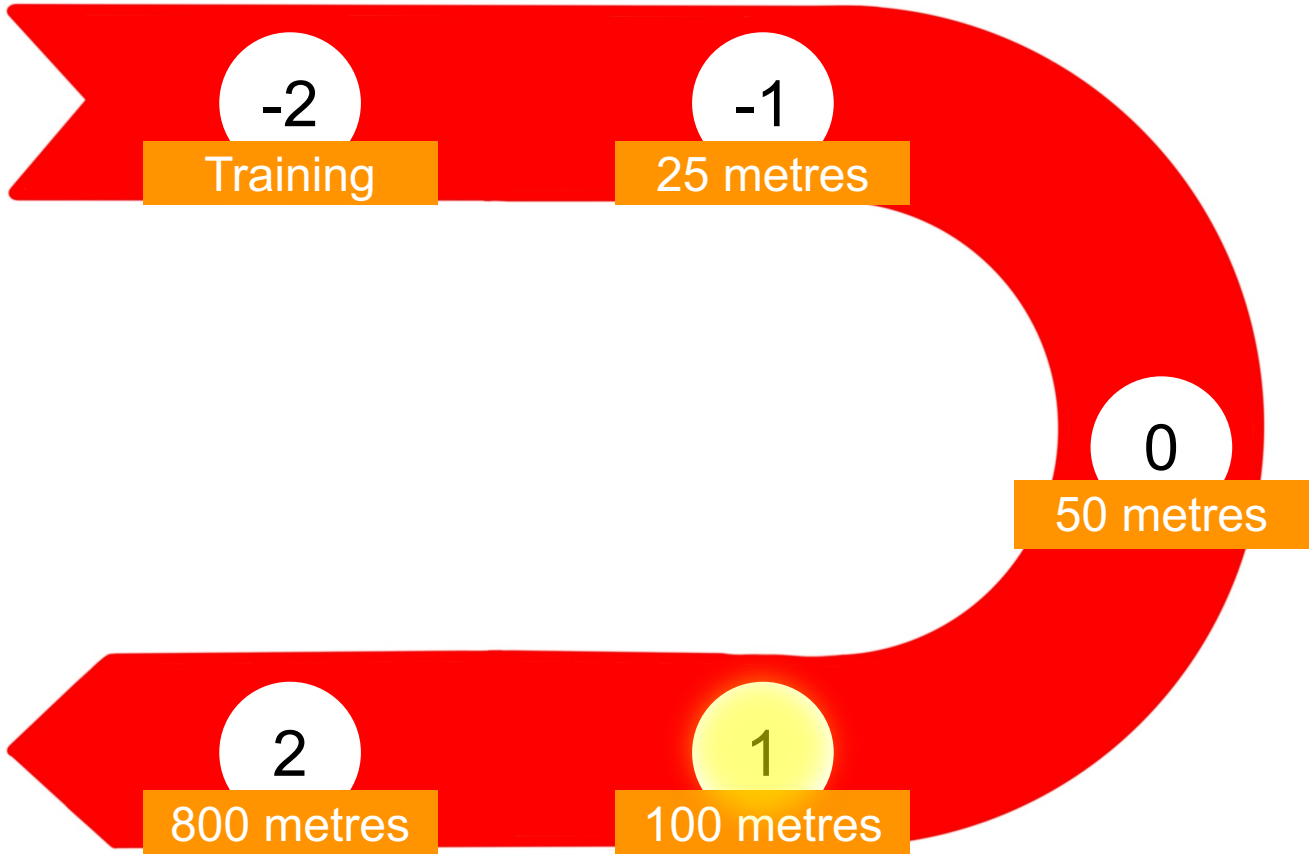
Goal Attainment Scaling

Goal 4 – To competitively swim **50 metres freestyle** by the end of 2022



Attainment

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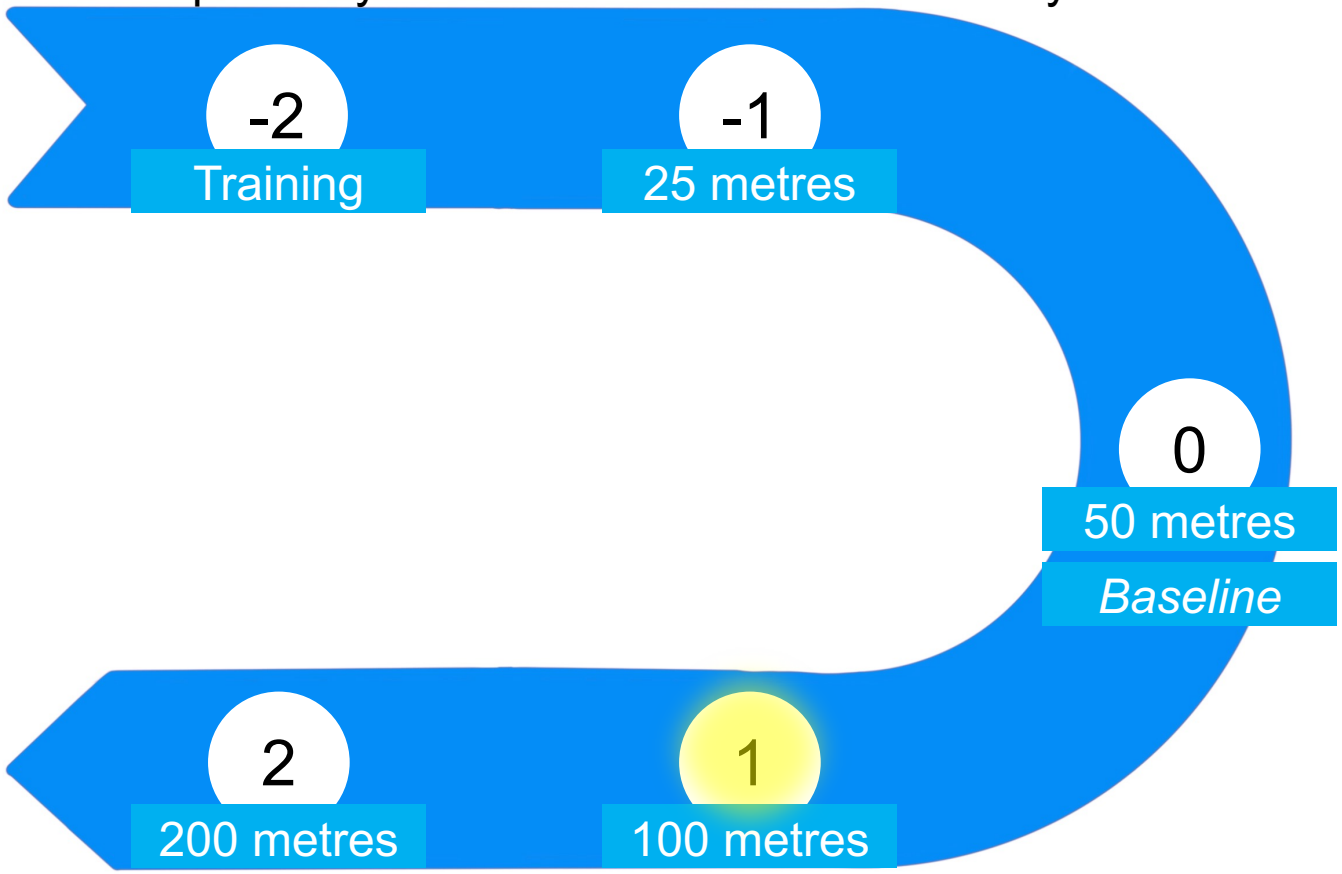
Goal Attainment Scaling

Goal 5 – To competitively swim **50 metres backstroke** by the end of 2022



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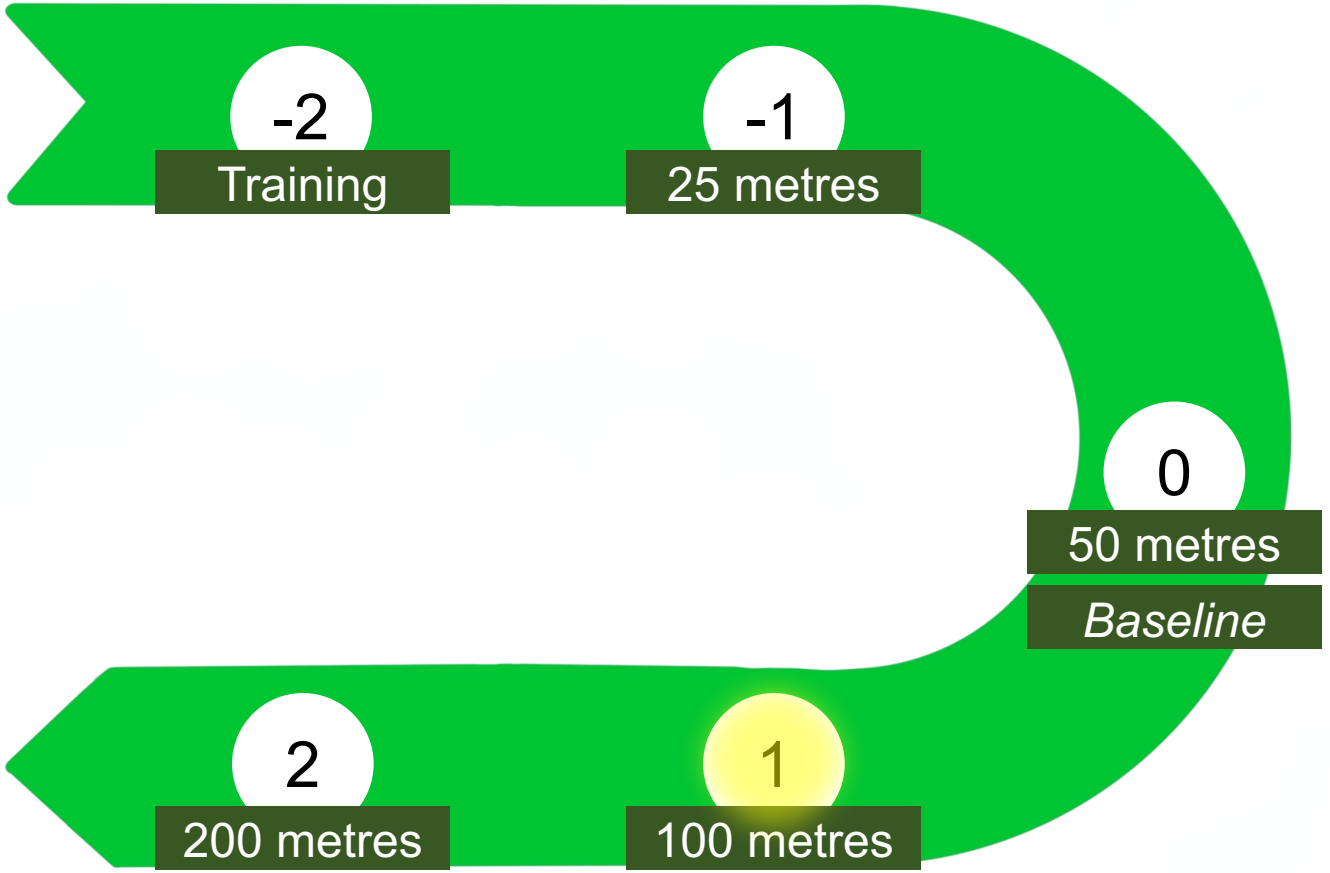
Goal Attainment Scaling

Goal 6 – To be able to competitively swim **50 metres butterfly** by the end of 2022



Attainment

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Goal Attainment Scaling

	Importance	Difficulty	Weight (W_1)	Outcome (X_1)	$10\Sigma(W_1X_1)$	ΣW_1^2	$(\Sigma W_1)^2$
Goal 4	3	2	6	1	6	36	6
Goal 5	3	3	9	1	9	81	9
Goal 6	3	3	9	1	9	81	9
Total					240	198	$(24)^2 = 576$

$$50 + \frac{10\Sigma(6+9+9)}{[(0.7)(36+81+81)+0.3(24^2)]^{\frac{1}{2}}} = 50 + \frac{240}{[(0.7)(198)+0.3(576)]^{\frac{1}{2}}} \approx \mathbf{63.6}$$

Goals – Swim Times

- **Goal 7** – To be able to competitively swim 50 metres freestyle in 41 seconds by the end of 2022
- **Goal 8** – To be able to competitively swim 50 metres backstroke in 56 seconds by the end of 2022
- **Goal 9** – To be able to competitively swim 50 metres butterfly in 56 seconds by the end of 2022
- **Goal 10** – To be able to competitively swim 100 metres freestyle in 1 minute and 36 seconds by the end of 2022

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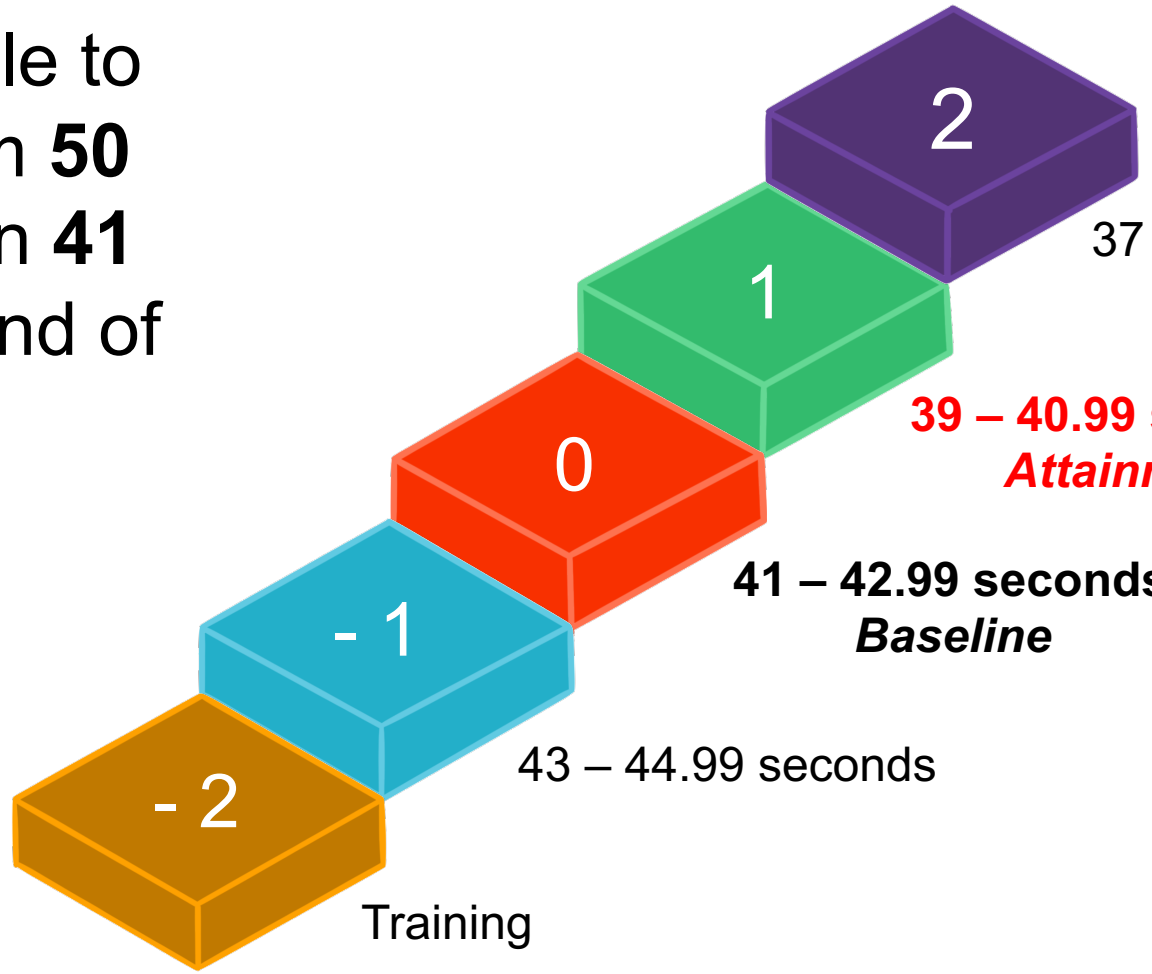
Goal Attainment Scaling

Goal 7 – To be able to competitively swim **50 metres** freestyle in **41 seconds** by the end of 2022



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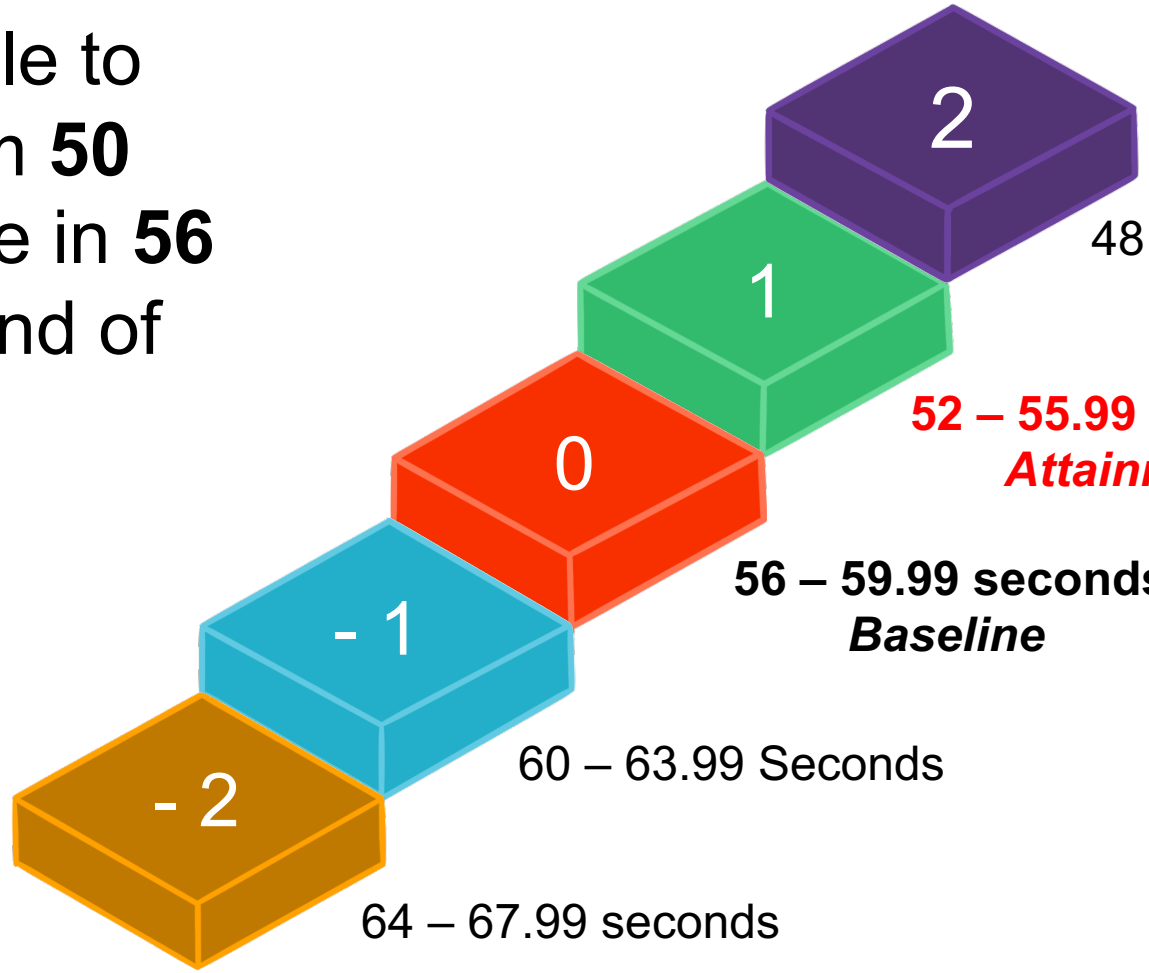
Goal Attainment Scaling

Goal 8 – To be able to competitively swim **50 metres** backstroke in **56 seconds** by the end of 2022



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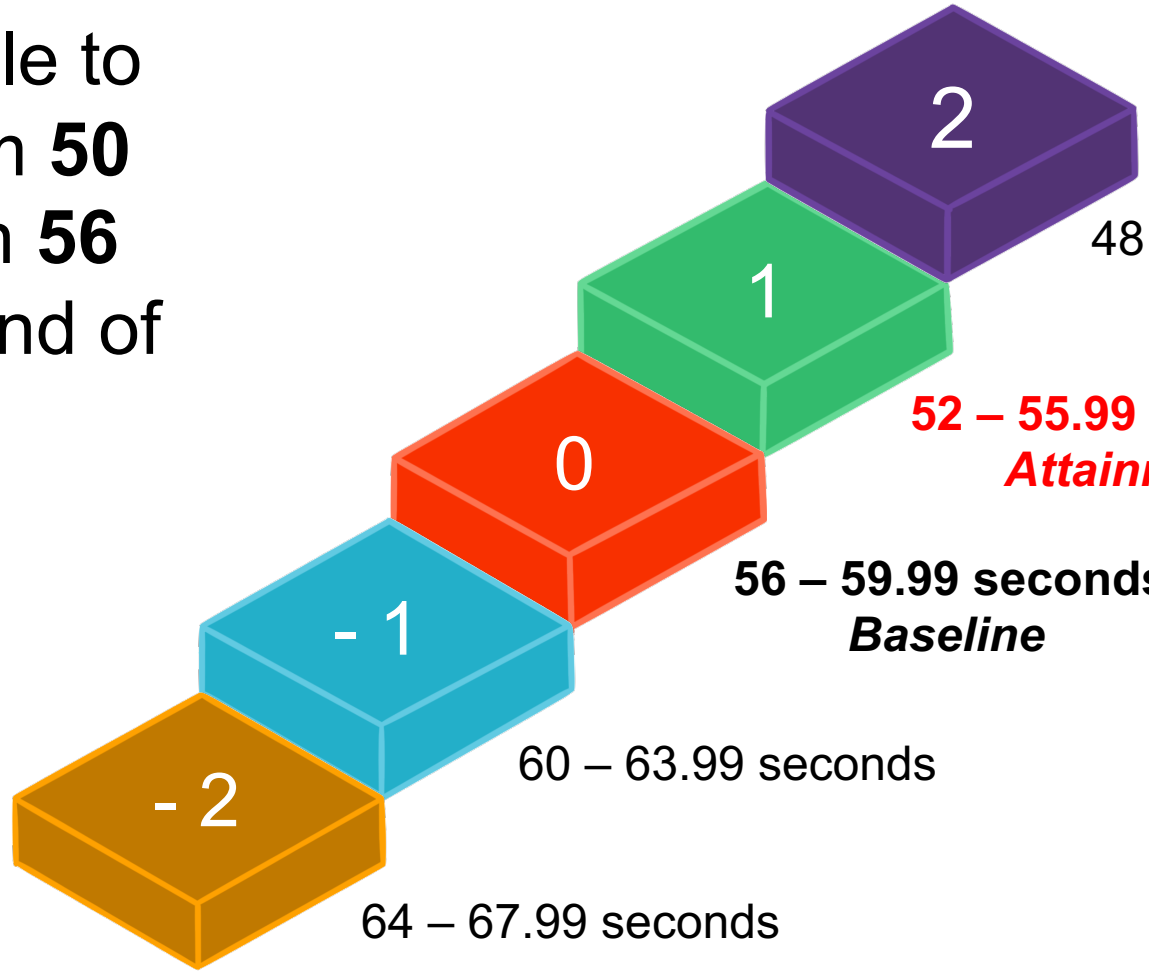
Goal Attainment Scaling

Goal 9 – To be able to competitively swim **50 metres** butterfly in **56 seconds** by the end of 2022



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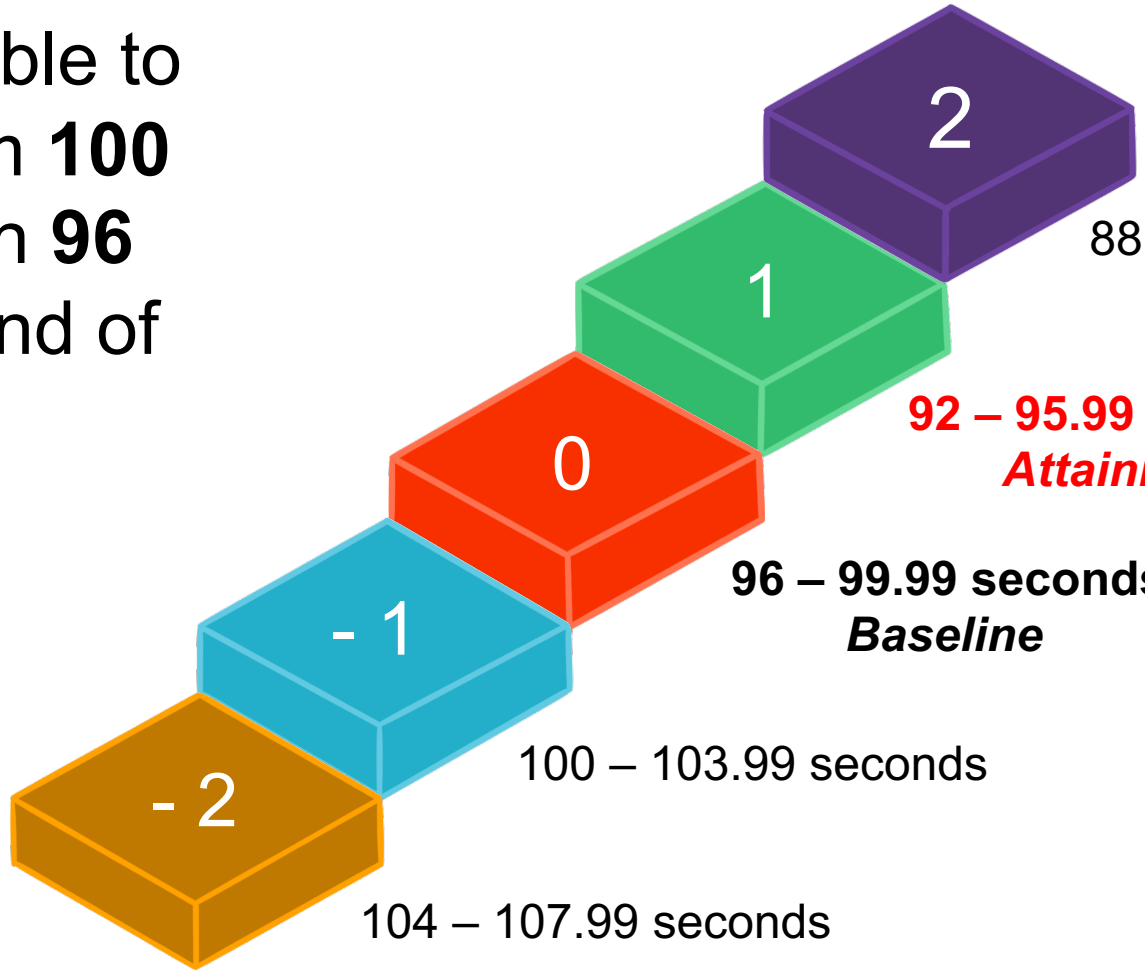
Goal Attainment Scaling

Goal 10 – To be able to competitively swim **100 metres** freestyle in **96 seconds** by the end of 2022



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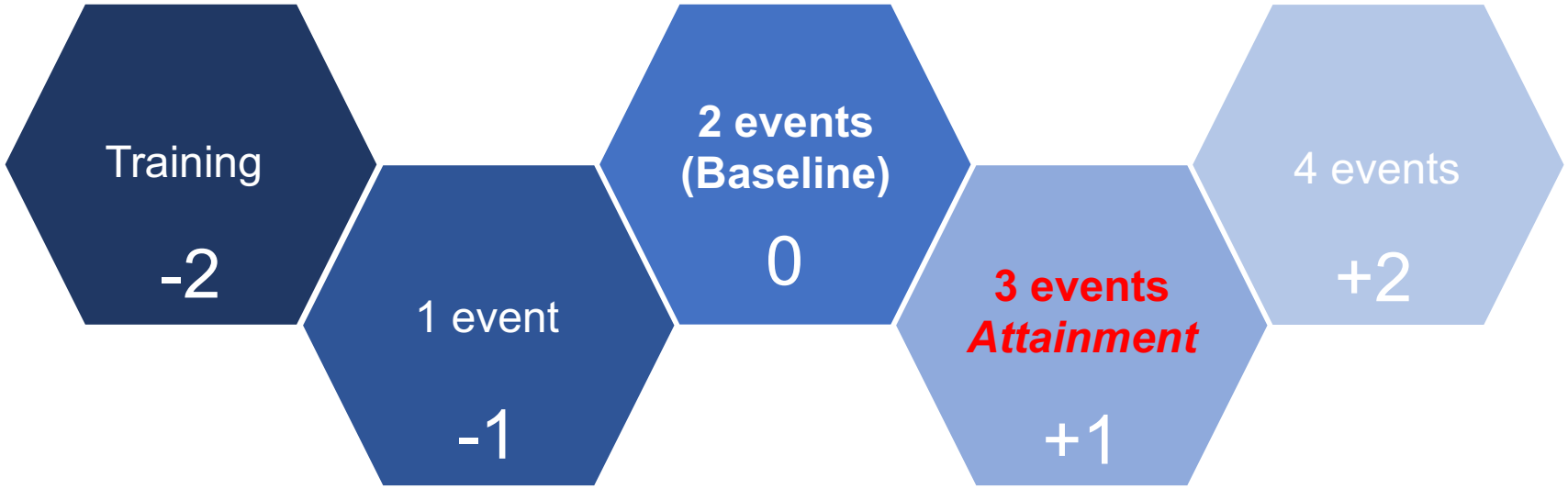
Goal Attainment Scaling

	Importance	Difficulty	Weight (W_1)	Outcome (X_1)	$10\Sigma(W_1X_1)$	ΣW_1^2	$(\Sigma W_1)^2$
Goal 7	3	2	6	1	6	36	6
Goal 8	3	3	9	1	9	81	9
Goal 9	3	3	9	1	9	81	9
Goal 10	3	3	9	1	9	81	9
Total					330	279	$(33)^2 = 1089$

$$50 + \frac{10\Sigma(6+9+9+9)}{[(0.7)(36+81+81+81)+0.3(33^2)]^{\frac{1}{2}}} = 50 + \frac{330}{[(0.7)(279)+0.3(1089)]^{\frac{1}{2}}} \approx \mathbf{64.44}$$

Goal Attainment Scaling

Goal 11: to compete in **2 events** at the **pool rescue championships** by the end of 2022



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Goal Attainment Scaling

Goal 11: to compete in **2 events** at the **pool rescue championships** by the end of 2022

-2	-1	0	+1	+2
	100m obstacle	100m obstacle 100m manikin tow	**100m obstacle** **100m manikin tow** **100m manikin carry**	100m obstacle 100m manikin tow 100m manikin carry 50m manikin carry

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Goal Attainment Scaling

	Importance	Difficulty	Weight (W_1)	Outcome (X_1)	$10\Sigma(W_1X_1)$	ΣW_1^2	$(\Sigma W_1)^2$
Goal 7	3	3	9	1	9	81	81
Total					90	81	$(9)^2 = 81$

$$50 + \frac{10\Sigma(9)}{[(0.7)(81) + 0.3(9^2)]^{\frac{1}{2}}} = 50 + \frac{90}{[(0.7)(81) + 0.3(81)]^{\frac{1}{2}}} \approx \mathbf{60.00}$$

Final Evaluation of Neurocognitive Training Program

- Overall comments in relation to Part One of the Neuro-Cognitive Training Program 2021 - 2022
- What's next: Part Two of the Neuro-Cognitive Training Program 2023 – 2024 will address the following areas:
    - Agility
    - Endurance
    - Proprioception
    - Strength

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Thank you

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