




FUTURE
Problem
Solving

Incorporate Problem Solving into Existing Curriculum

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Competition Director





“ *Creativity is the process of sensing problems or gaps in information, then identifying the difficulties and seeking solutions through trial and error.* ”

E. Paul Torrance

Session Objectives



**Overview of the
Creative Problem
Solving Process
(CPS)**



**Applying the
Creative Problem
Solving Process**



**Translate
Creative Problem
Solving to your
curriculum**



**Future
Problem
Solving
Program
(FPS)**

Partners in Problem Solving

Creative Problem Solving Process

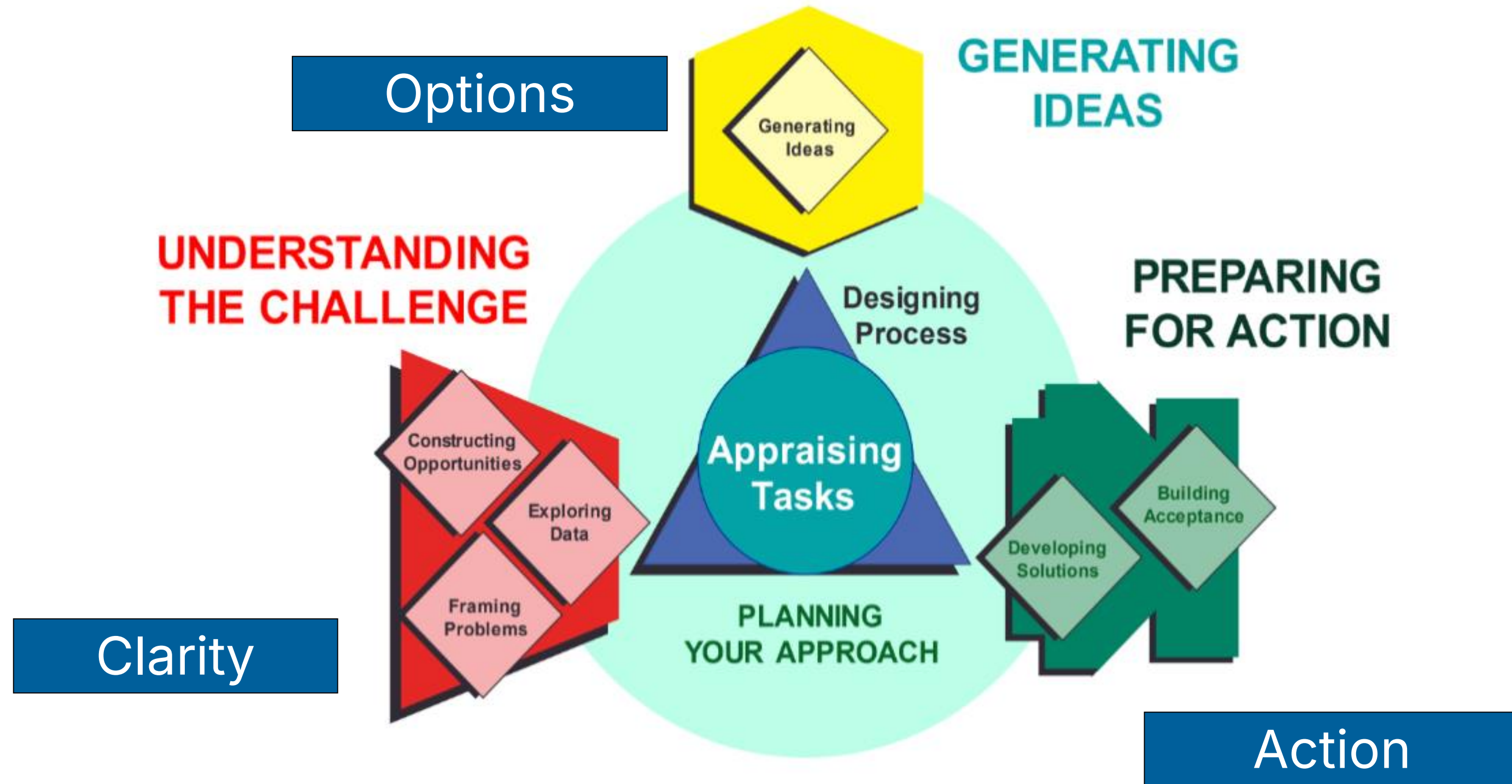
- Steps for addressing challenges, issues, and problems
- Thinking tools
 - Generating
 - Focusing



Future Problem Solving Program

- Academic components
 - Global Issues
 - Community Projects
 - Scenario Performance
 - Scenario Writing
- Evaluations and feedback

Creative Problem Solving Process



Problem Solving Enhances Educational Standards

Understand the Problem

- Research
- Analyze the situation
- Select an Underlying Problem

Generate Ideas

- Identify Challenges
- Produce Solution Ideas

Plan for Action

- Focus on the best Solution
- Develop and Action Plan

Effective Problem Solving relies upon:

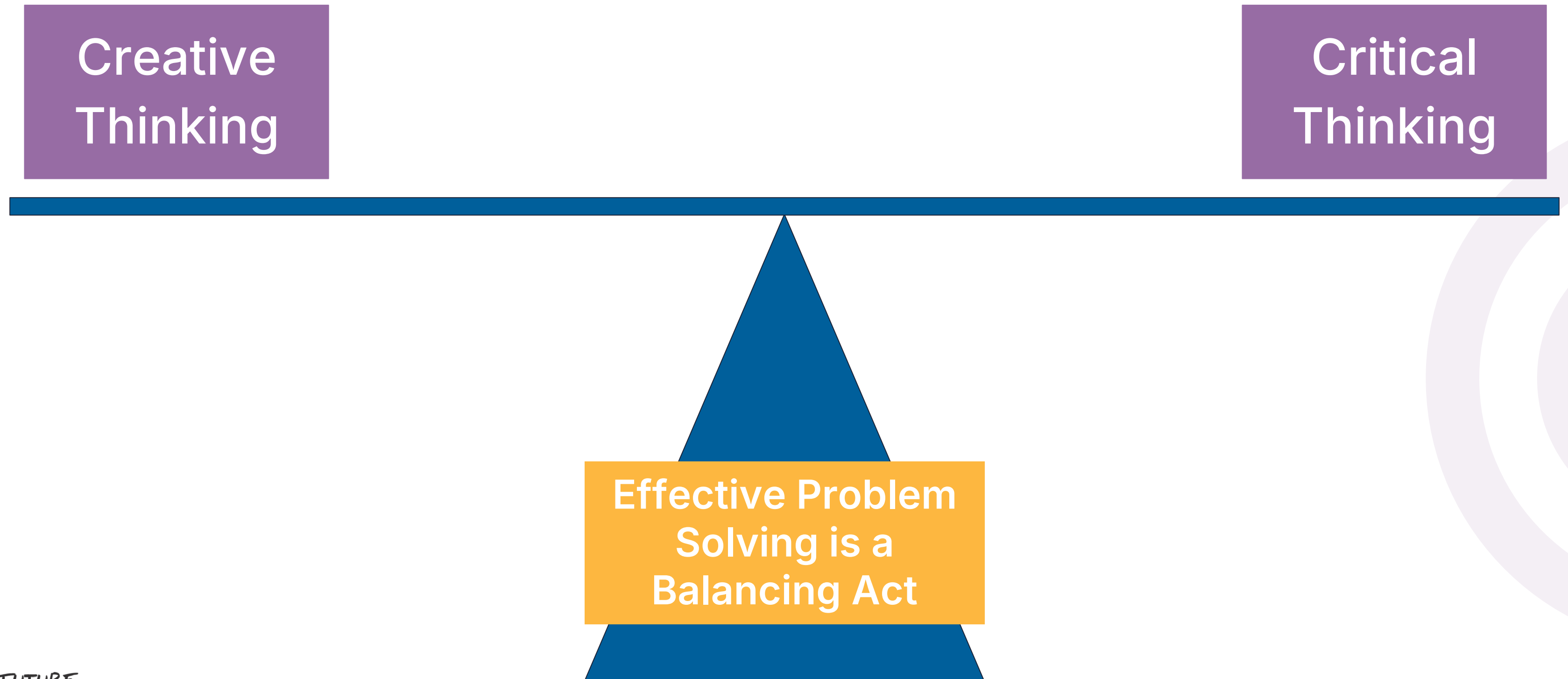
Creative Thinking

&

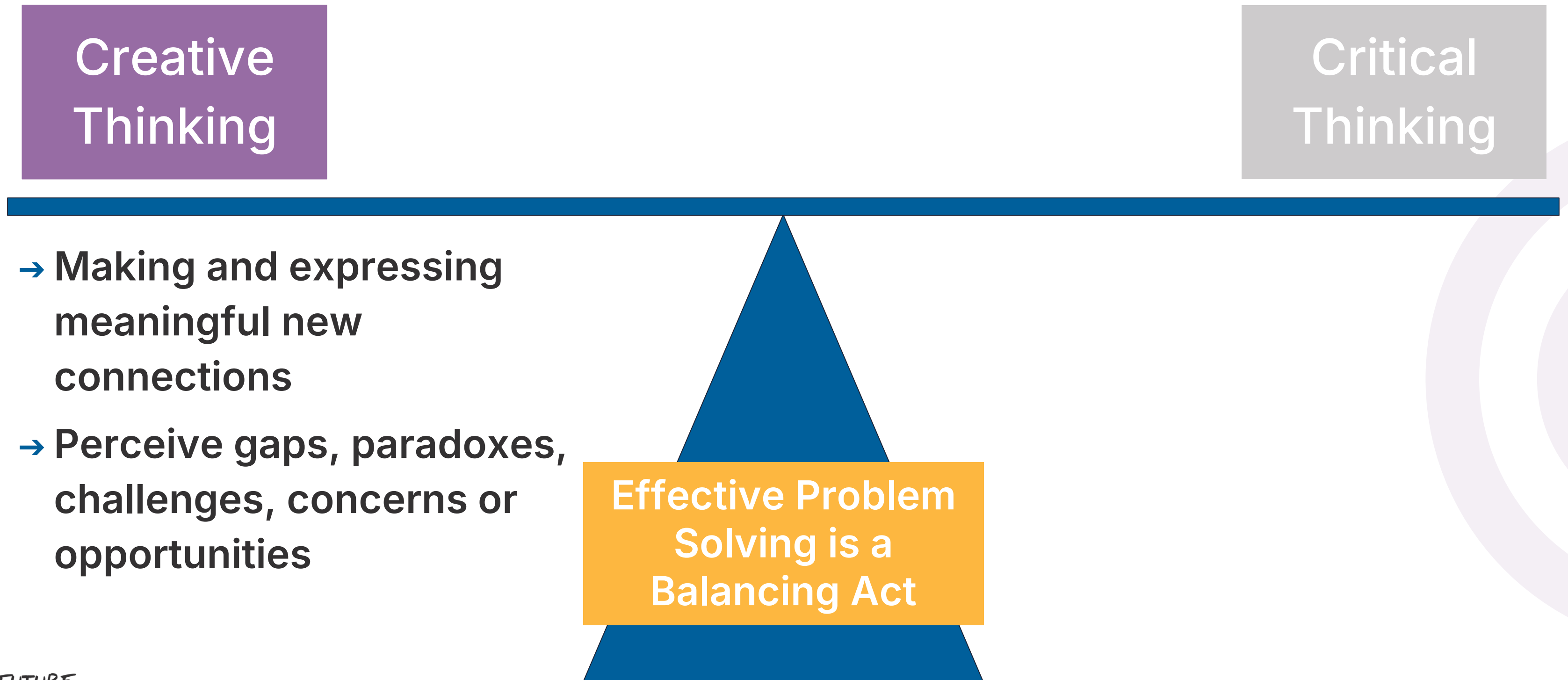
Critical Thinking



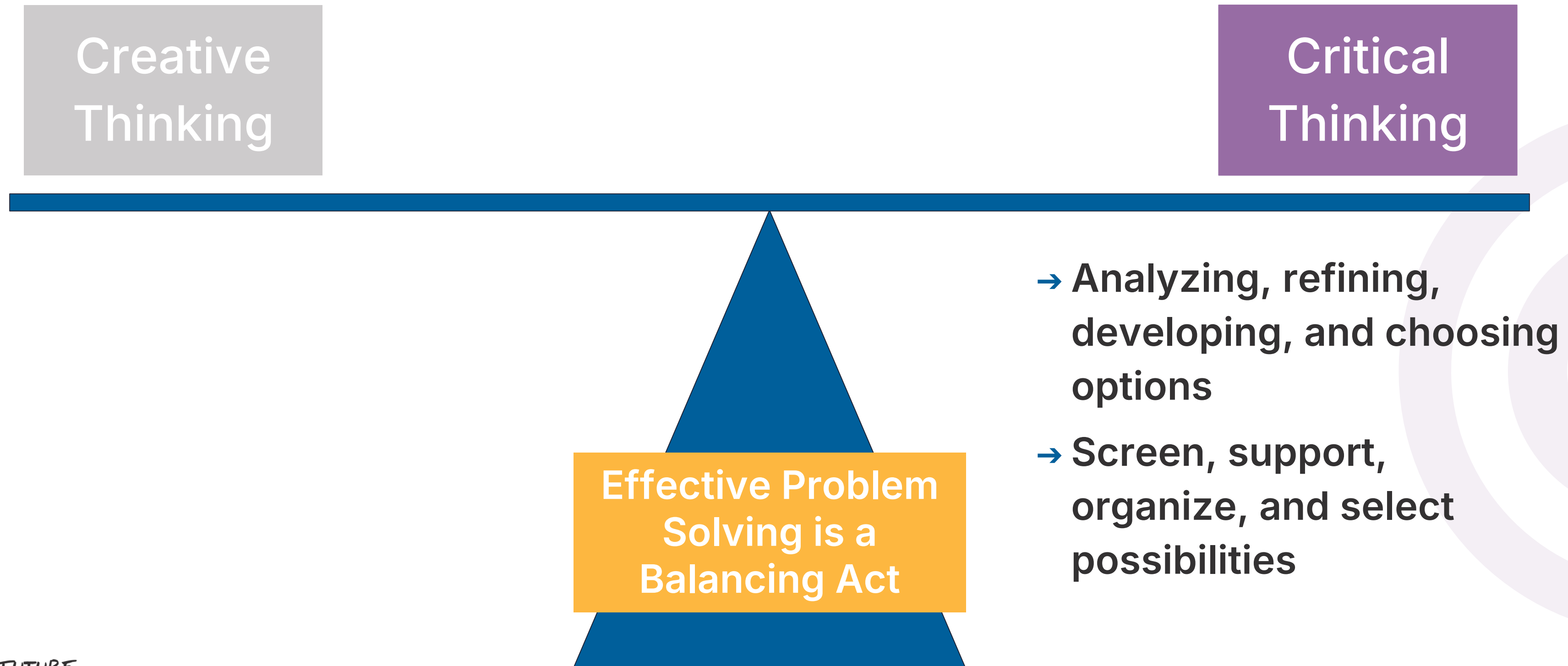
Inventive Thinking through CPS



Inventive Thinking through CPS



Inventive Thinking through CPS



Do you think these images look like creative thinkers?



Creative Thinking

Divergent Thinking

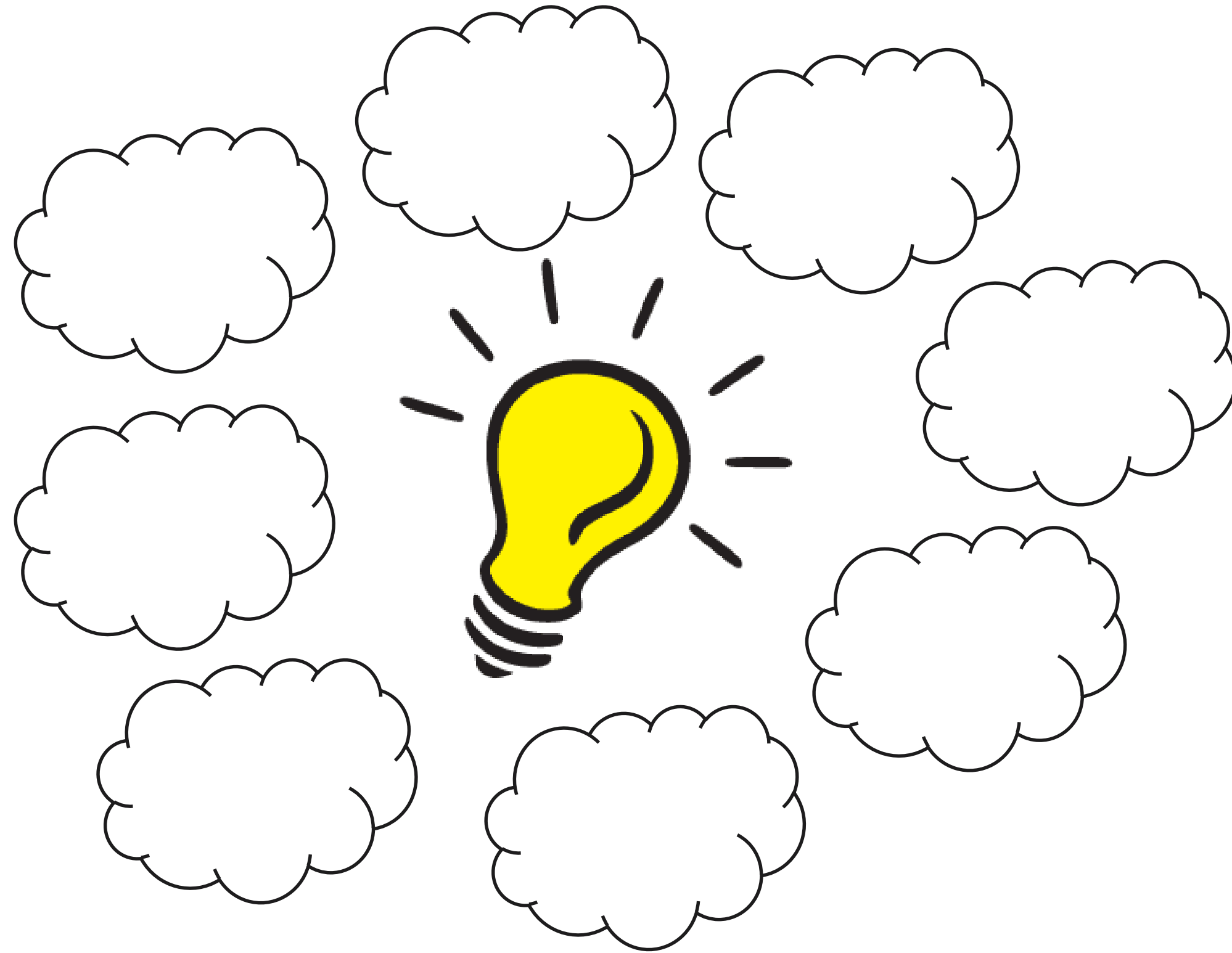
- **Generating many ideas**
- **Introducing new ideas**
- **Deferring Judgment**

Guidelines for generating using deferred judgment

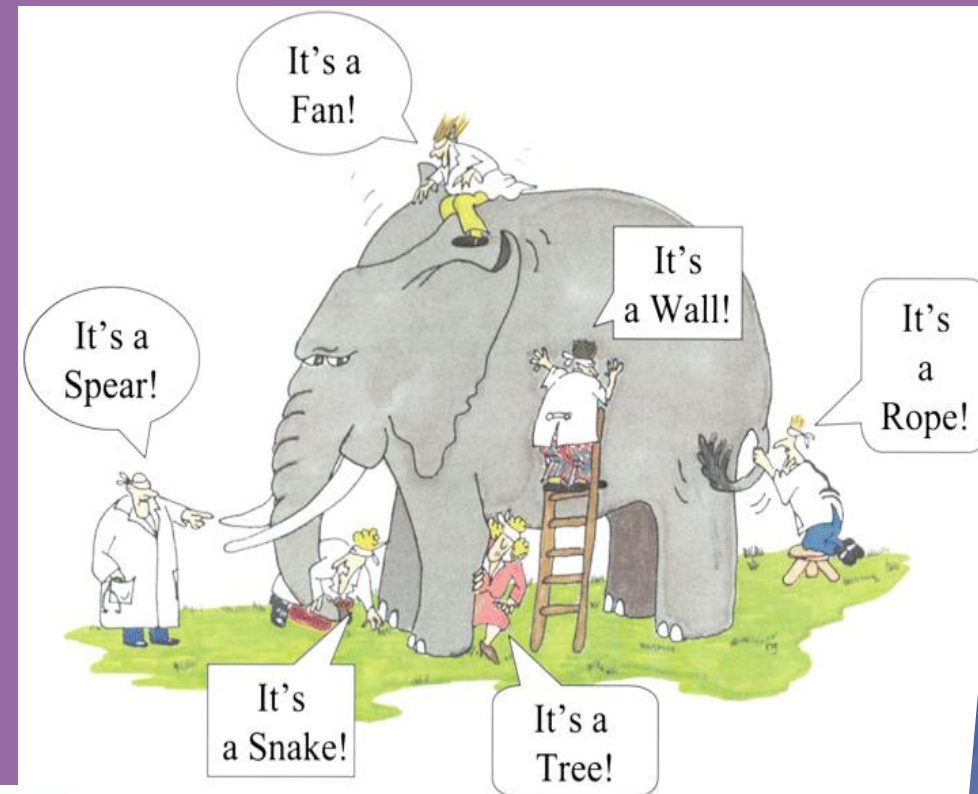


1. Avoid criticism or praise
2. Quantity is wanted
3. Combinations and improvements
(hitchhiking or piggybacking)
4. Freewheeling
(wild and crazy ideas are welcome!)

Generating Ideas



Do you think these images look like critical thinkers?



Critical Thinking

Convergent Thinking

- Focusing on the best idea(s)
- Affirmative Judgment

Creative Problem Solving Process

Creative
Thinking

Critical
Thinking

Convergent Thinking

- Focus on best ideas
- Combine and organize ideas
- Affirmative Judgment

Guidelines for focusing using affirmative judgment

1. Be thorough, but positive
2. Follow a plan using focusing tools
3. Keep eyes on the goal
4. Stay open to all ideas – looking for new and unusual possibilities



Focusing Tools

→ ALoU

Advantages, Limitations (overcome), Unique possibilities


→ Hot Spots

→ SML

Sequencing , SML (short, medium, long) range goals/options

→ Paired Comparison Analysis

→ Evaluation Matrix



“ In reference to right answers – knowing is a process, not a product. ”

Jerome Bruner

1 29 33 9 14 42 46 18 26
13 5 2 34 38
21 17 41 37 6 10 30 22
45 25 39 8
11 39 19 43 12 32 8 48
7 15 23 16 36 24 20
27 47 35 31 16 44 28 40
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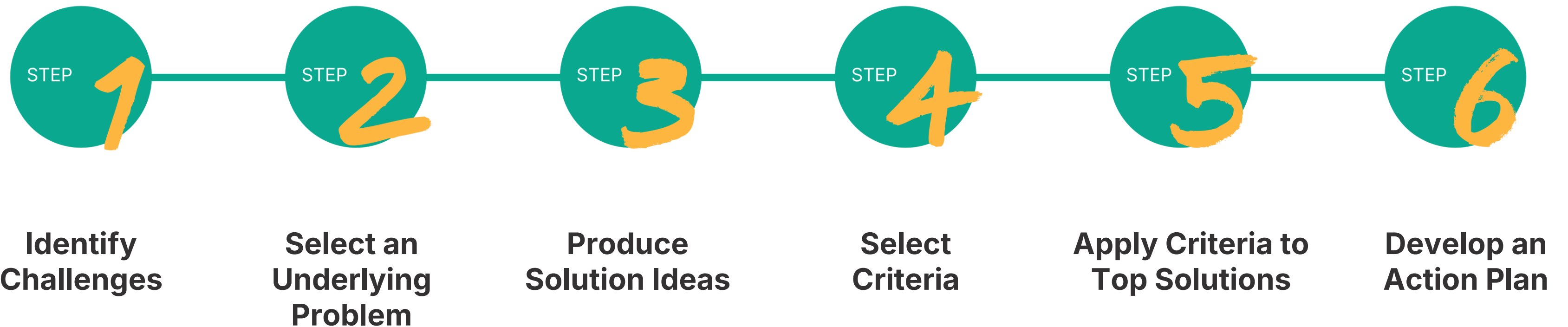
Why is having a process helpful?

Once learned, it's easy to apply

- Processes become second nature and help us solve problems throughout our lives
- Humans naturally look for patterns and processes to navigate their world
- Example: Learning to drive a car



The Problem Solving Process



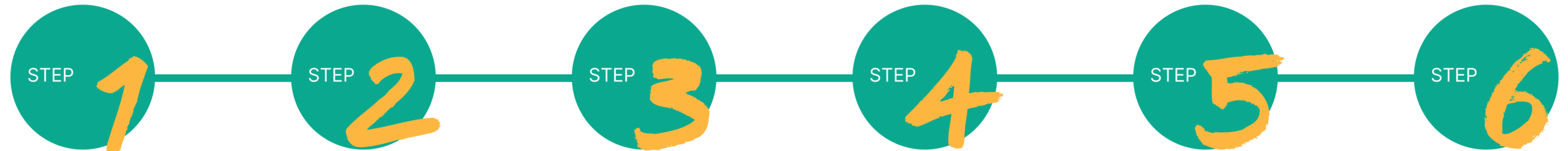
The Problem Solving Process



**Clarity:
Understanding
The Problem**

**Options:
Generating
Ideas**

**Action:
Planning your
Approach**



The Problem Solving Process



**Clarity:
Understanding
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Divergent

Divergent

**Divergent
&
Convergent**

Convergent

Convergent

Creative Problem Solving Exercise

A simple sample to illustrate the problem solving process is best to use the first time – no research necessary.

News articles, events in history, personal life issues, etc. can also be used.

Imagine...

A giraffe driving a car

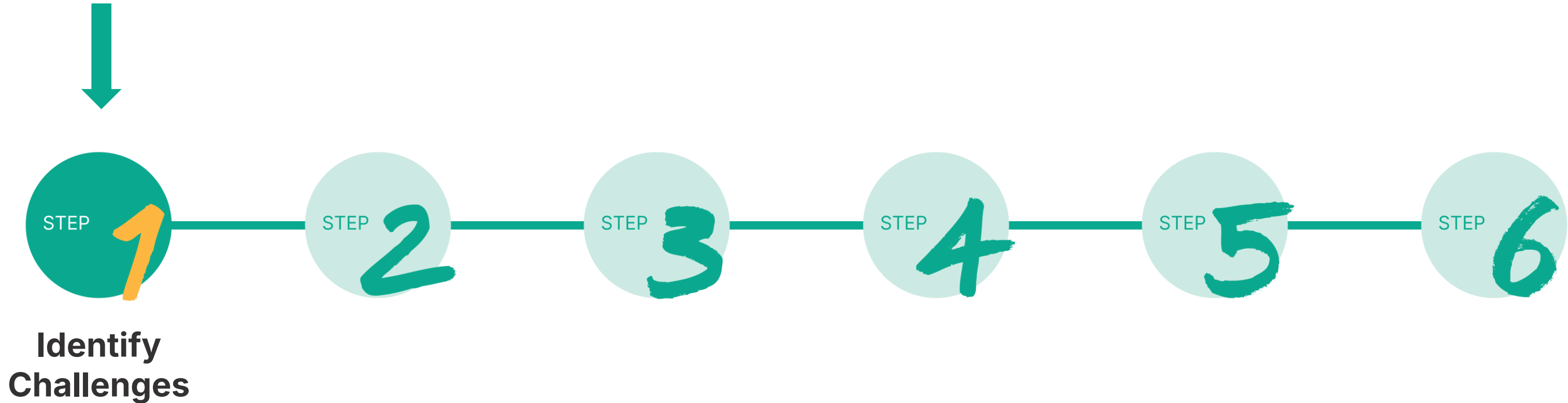
You're driving home after a long day, and you just want to listen to some music. You merge into traffic, and when checking your mirrors you see a giraffe driving a car.

**You have a lot of concerns about this.
Where do you start?**

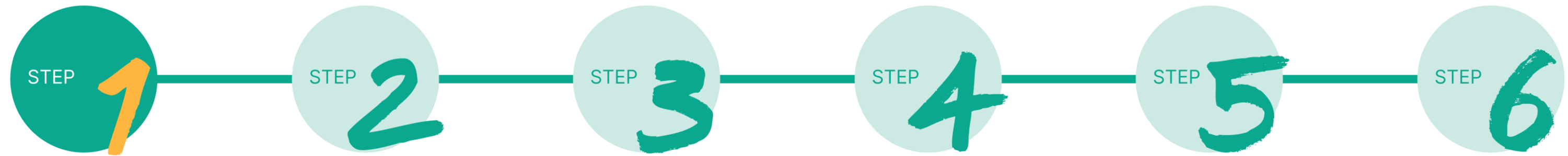


Getting Started

Research and Analyze Situation



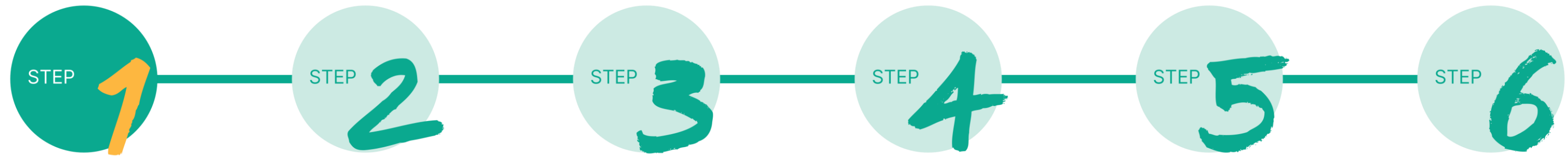
Step 1 – Challenges



Challenges are problems, issues, or concerns that are a logical cause or effect related to the situation or Future Scene.

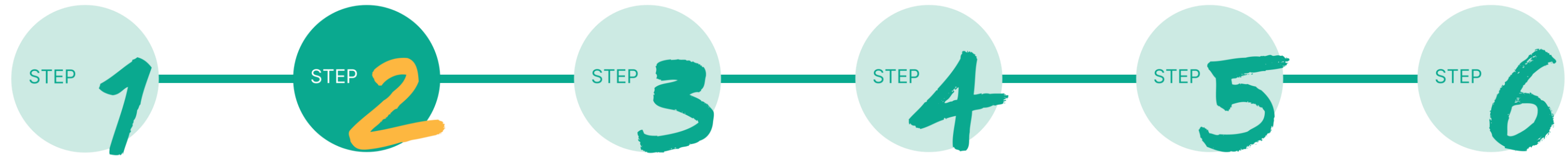
What are some challenges that you might face if there was a giraffe driving a car?

Step 1 – Challenges



1. They may hit their head driving under things.
2. They may not be able to read the road signs.
3. Since giraffes have hooves not hands, they may have trouble using the steering wheel.
4. Giraffes won't fit in a normal car. This could make it difficult for them find an appropriate vehicle to purchase.
5. They would have to stick their head out the window because they are too tall to fit completely in the car.

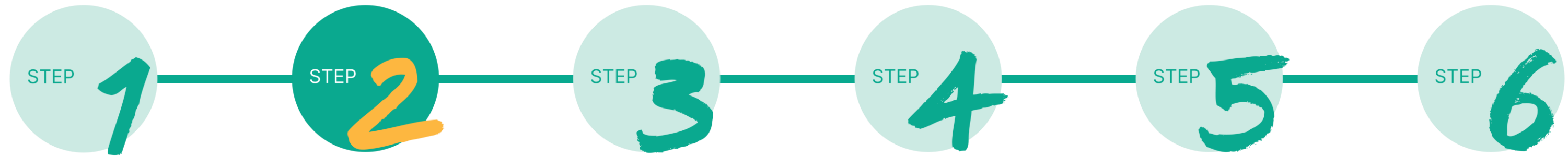
Step 2 - Underlying Problem



An Underlying Problem contains an action goal that will have a strong, positive impact on the situation if it was accomplished.

What are some action goals that could make an impact on the giraffe driving the car?

Step 2 - Underlying Problem



Due to the fact that cars, rules, and roadways are not currently designed for giraffe drivers

(Rationale)

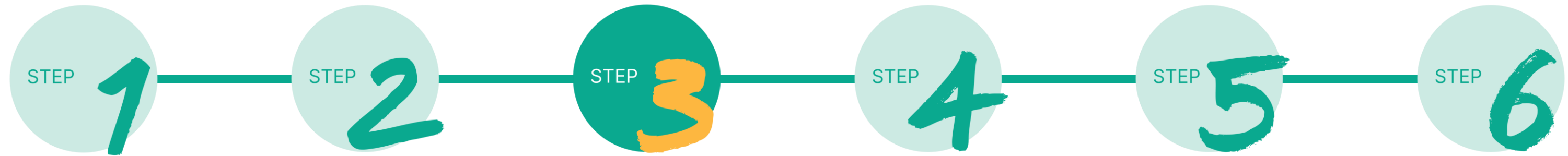
How might we improve the giraffes' driving education

(Action Goal)

so that they will be safe drivers?

(Purpose)

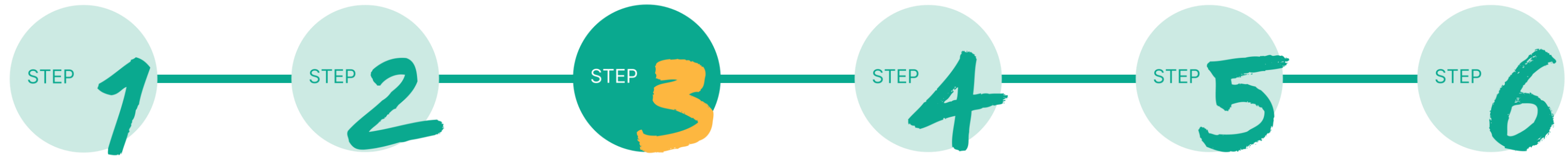
Step 3 - Solutions



Solutions respond to the Underlying Problem through varied and unusual ideas.

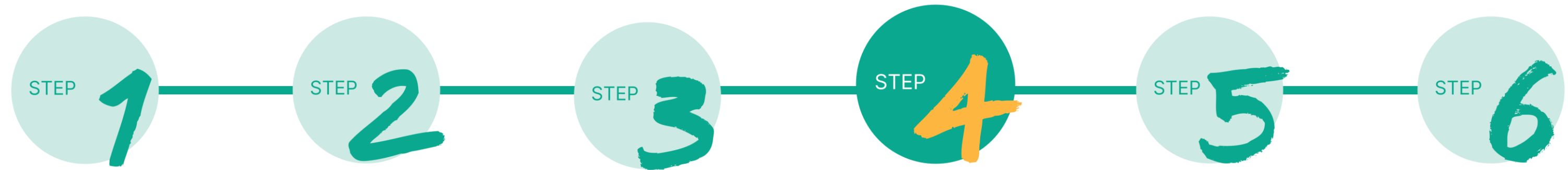
What are some solutions that would improve the giraffe's driving education?

Step 3 - Solutions



- 1. Animal Educators will open an all-animals driving school to provide proper driver's education to giraffes.**
- 2. The Department of Transportation (DOT) will create driving manuals in giraffe-friendly language in addition to the existing signs so that all drivers can easily follow the rules.**
- 3. Tesla will invent a car that announces the text of driving signs.**

Step 4 - Criteria

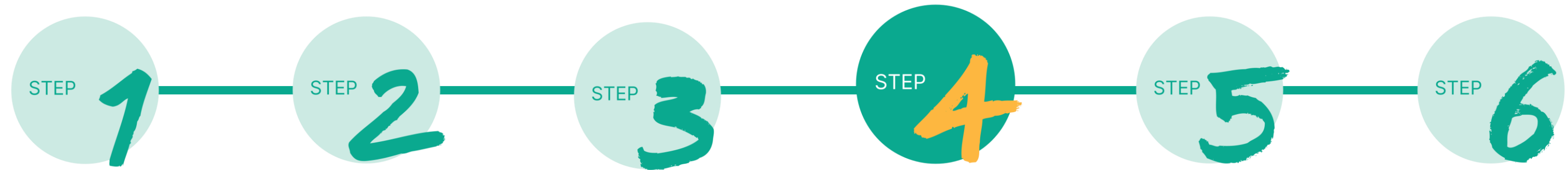


Criteria are questions that help determine which Solutions best solve your Underlying Problem.

Each Criterion has one concept so they can be used to compare solutions.

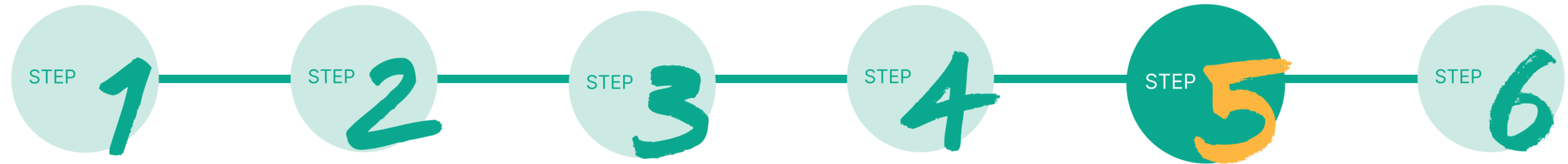
What are some potential criteria for evaluating solution ideas?

Step 4 - Criteria



- 1. Which solution will (WSW) most reduce the number of accidents caused by giraffes?**
- 2. WSW be the most accepted by all drivers?**
- 3. WSW make the roads safest for all travelers?**

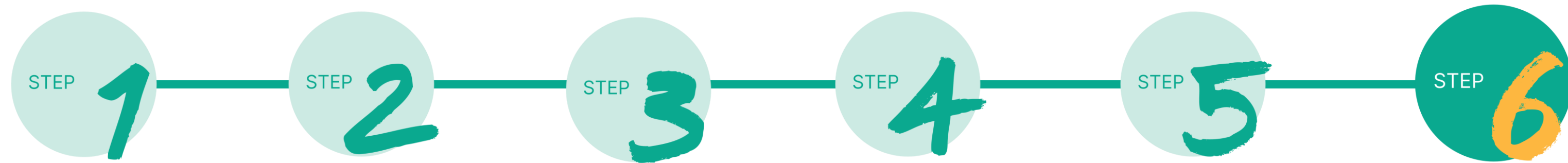
Step 5 – Apply Criteria



Use the Criteria to rank your Solution Ideas and determine which one best solves your Underlying Problem.

Solutions	Criteria 1	Criteria 2	Criteria 3	Totals
	Most reduced accidents	Most accepted	Safest	
Driving school	3	1	2	6
Giraffe language driving manuals	2	2	3	7
Teslas announce signs	1	3	1	5

Step 6 – Action Plan

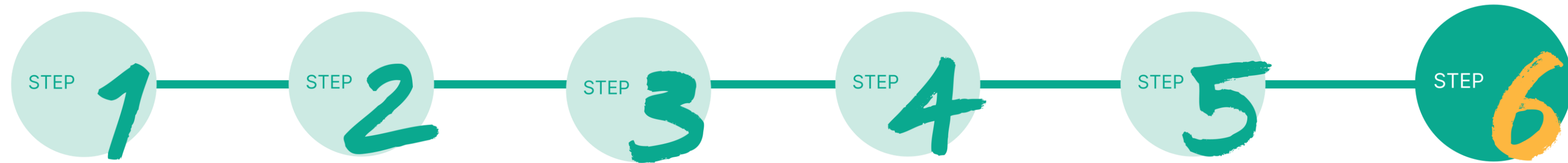


An Action Plan explains how you'll implement your best Solution and why it will have a significant impact on the situation.

The best Solution from our Evaluation Matrix was driving manuals in giraffe language.

What will it look like to make giraffe-language driving materials a reality?

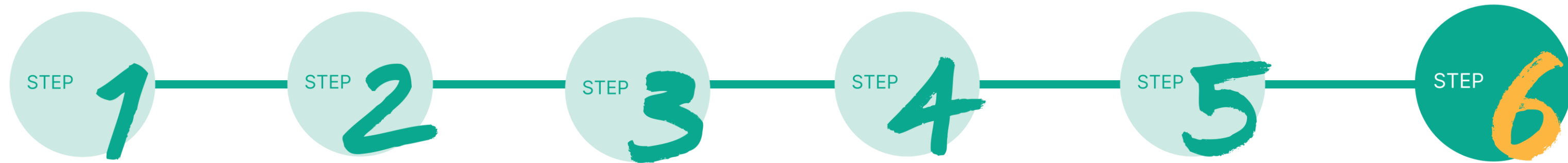
Step 6 – Action Plan



For consideration in developing an Action Plan:

- 1. How does the plan respond to the criteria?**
- 2. How does the plan address the goals of the UP?**
- 3. How will the plan impact the existing situation?**
- 4. Detailed description of the plan (who, what, why, when, how)**
- 5. How will stakeholders respond?**

Step 6 – Action Plan



Driving manuals will be created in multiple languages, starting with giraffe. The DOT will also add giraffe-friendly signs to the roads so that they are able to understand traffic rules.

- **This will take 6 months to accomplish. Some people may not like giraffes getting special manuals, but it will not hamper people that do not need them.**
- **By improving the likelihood of giraffes understanding driving rules, this will improve the safety of the roads for all travelers.**

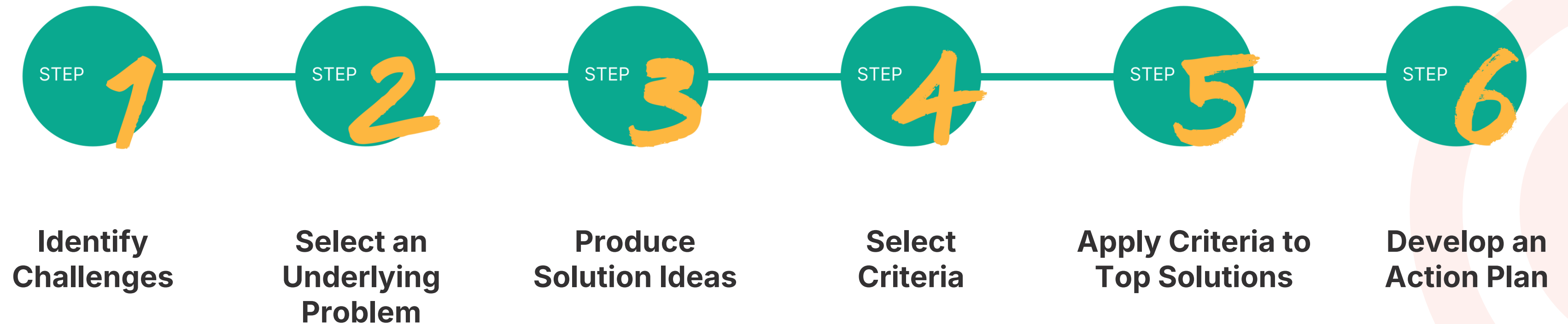
“ *There is no doubt that creativity is the most important human resource of all. Without creativity, there would be no progress, and we would be forever repeating the same patterns.* ”

Edward De Bono



Your Classroom

Your Classroom **Situation and Needs**



Your Classroom



STEP

2

Underlying Problem

Because problem solving helps students develop skills needed to be critical and creative thinkers, and the Creative Problem Solving process can enhance existing curriculum,

how might we incorporate CPS into existing lesson plans

so that existing lesson plans can better promote creative and critical thinking?

Your Classroom

Solutions

Generate Solution Ideas

“incorporate CPS into existing lesson plans”



Adapting it for your needs

- **Transportable – across subjects**
- **Snackable – can be one step at a time**
- **Age variable**
- **Extracurricular**
- **Pull-out program**
- **Enrichment**
- **Community projects**
- **Independent study**



““ *It isn't that they can't
see the solution,
It is that they can't see
the problem.* ””

G.K. Chesterton



Future Problem Solving



Action-based (AbPS)

Curricular



Global Issues (GIPS)

Topic-related
Team & Individual
3 Divisions
5 Problems



Community (CmPS)

Student Directed
Team & Individual
3 Divisions
Project-based



Scenario Writing (SW)

Topic-related
Individual
3 Divisions

Feedback and evaluation provided for ALL components

2024-25 Topics



Food Security



Rising Sea Levels



Agricultural Industry



Nanotechnology

More about Future Problem Solving

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Incorporate Problem Solving into Existing Curriculum

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