



AVISTA CHALLENGE

STUDENT RESOURCES

avista.org.au

Team Formation

Before you can begin the AVISTA Challenge, you need to form an effective team of 3-5 people. Your teacher will guide you through the activities in this section to help you form a power team with diverse



Team Strength Cards

- Read each card out loud in your group and talk about what it means.
- Group similar cards together.
- Make 3 piles with the same number of cards and give each pile a name.

'I always do my share of the work.'	'I offer to help before being asked.'	'I help everyone feel included.'
'I ask questions to understand better.'	'I come prepared and ready to help.'	'l work hard even when it's difficult.'
'I keep my promises to my team.'	'I listen carefully when teammates talk.'	'I make sure we all agree on our goals.'
'I encourage others when they're having trouble.'	'I take responsibility when I make mistakes.'	'I share my ideas and skills with the team.'
'I help create a team we're proud of.'	'I celebrate when my teammates succeed.'	'I stick with my team through challenges.'



Personal Power check

Simple self-assessment: Think about your rescue challenge. Circle the words that describe you:

1. Personal Power:

reliable, hard-working,

prepared, responsible.

2. Team Connection Power:

friendly,	sharing,
. .	Ű,

celebrating, including.

3. Support Power:

encouraging, helpful,

listening, caring.



Team Charter

Team name :

Team members:

Our mission:

We will help people during the cyclone by

Our team powerpromises:

Personal Power- I promise:	
I will do my fair share by	
I will be reliable by	
If I am struggling, I will	



Team connection power- we promise:	Team connection power- we promise:		
Our shared goal is			
We will stick together by			
We will listen by			
Support power- we promise:			
When someone needs help, we will			
We will encourage each other by			
We will listen by			
If we disagree, we will			

All team members sign:

Date:



Step One: Operation Define

Now that you have received your operation briefing, you need to analyse the scenario to clearly define the problem that needs to be solved.



What problem are you trying to solve?

Describe what has happened and what needs to be done. *Hint: return to the operation briefing and highlight key information*

Who will benefit from your solution?

Think about who needs help and who your solution will support.

Why does this problem need solving?

What is the purpose of this operation? Hint: Think about possible ethical, environmental, political, safety and defence implications



What does the solution need to do?

What are the most important goals your solution must achieve? *Hint: Think about safety, timing, transport, security, communication etc.*

What do you need to produce?

What is the final product or plan that you will create?

What questions do you still have?

You will spend time researching and exploring this problem before you develop your own solution. What questions do you have right now?



Step Two: Operation Identify

Now that you have clearly defined the problem, you need to identify the constraints, limitations, and key information needed to solve the problem effectively and research existing technology and strategies.



What are your constraints?

Hint: A constraint is something that limits what you can do when designing a solution. It could be about time, cost, materials, safety, or the environment. You must work around constraints when planning your idea.

Who is the audience for your final plan?

Hint: This is important to consider how you will communicate your solution

What are your timelines?

Hint: Think about the time you have available to develop a solution (how much class time?) AND how long your solution will take to implement.



What further information is needed?

Hint: what questions do you still have? What do you need to research further?

Next Steps

If you wish, the following pages have examples of graphic organisers that you can use to further work through this step. The tables in this document aren't editable, but you can ask your teacher to print them or create them for yourselves in a new document.



Concept/ Technology/ Solution element	How it works	Purpose/ use in disaster response	Challenges	Real-world examples	Additional info
Drones					
Helicopters					
Satellites					
Fixed wing aeroplanes					
4WD vehicles					



Concept/ Technology/ Solution element	How it works	Purpose/ use in disaster response	Challenges	Real-world examples	Additional info
Encryption					
Sensors					



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Step Three: Operation Brainstorm

Now that you have identified the constraints and limitations of the problem and conducted your research into existing technologies and strategies, you need to get creative. In this stage, you should generate a wide range of creative ideas that could help solve the problem in different ways.



Crazy 8s

Draw or write one idea per box





SCAMPER

Use this template to improve or adapt an existing idea or invention. It stands for: Substitute, Combine, Adapt, Modify, Put to another use, Eliminate, Reverse.

Existing Idea/ invention:	
Substitute- What could we swap out?	
Combine- Can we merge it with something else?	
Adapt- How could we change it for this situation?	
Modify- Could we make it stronger, lighter, faster?	
Put to another use - Can we use it in a new way?	
Eliminate- What parts could we remove?	
Reverse- What if it worked the opposite way?	



Step Four: Operation Design

Now that you have come up with a wide range of ideas, it is time to evaluate your ideas and select the best ones to refine.



Using a Decision Matrix

Step 1: Choose your top 3-4 ideas (or combinations of ideas) from your brainstorming session. Write these in the top row of the table.

Step 2: Decide on your evaluation criteria. Choose 3-5 criteria that matter most. Write these in the first column.

HINT: Use your work from Operation Define and Operation Identify to set the criteria for your solution.

Step 3: Score each idea against the criteria.

- 1= doesn't meet the criteria well
- 2= somewhat meets the criteria
- 3= meets the criteria well

Step 4: Add up the total score for each idea.

Criteria	ldea 1:	ldea 2:	ldea 3:	ldea 4:
1				
2				
3				
4				
5				
TOTAL				



Does the 'winner' meet ALL requirements to solving the problem, or do you need to combine elements of another idea?

Write a few sentences explaining the idea you have chosen and why you chose it.



Step Five: Operation Prototype

Now that you have chosen the best solution, you need to plan it out in detail. Depending on the nature of your solution, you may need to include diagrams, models, maps, step-by-step instructions, procedures and/or a detailed draft document.



You should also keep in mind how you are going to communicate your final solution. This will inform the information you need to include and how you present it.

HINT: Refer to the original briefing documents and your operation define and identify work.

Here are some optional planning templates that may help you, but ultimately this stage depends on what your solution is. Ensure you consider all parts of the problem and how the different parts of your solution fit together.



Step Six: Operation Evaluate

Now that you have planned out your solution, you need to assess how well it meets the design criteria and solves the problem. The templates below should be used to help you evaluate your plan.



Evaluation

Use the table below to evaluate your plan against the criteria you set for success. HINT: return to Operation Define for the criteria. The original operation briefing, submission guidelines and judging criteria may also be useful. Use dot points or numbers to help organize your ideas.

Objectives (what your	How well does your plan	Suggested improvements
solution should do)	do this?	



SWOT analysis





Step Seven: Operation Iterate

Now that you have evaluated your plan, you need to improve it by using feedback and what you've learned. It's a cyclical process- after evaluating your plan, you make changes and improvements. You might go through this cycle more than once to get the best possible solution.



The table below will help you work out which of your suggested improvements make sense to implement in your plan.

List each improvement from Operation Evaluate in the left-hand column. Discuss in your team and decide if you will make the change. Make sure you are clear on why or why not, and what the consequences will be. Once you have determined which changes to make, return to your plan and make the improvements. Then, you will need to return to the evaluation stage and re-evaluate your plan.

Suggested	Will you make the change? (Y/N)	Why/why not?	Consequences

