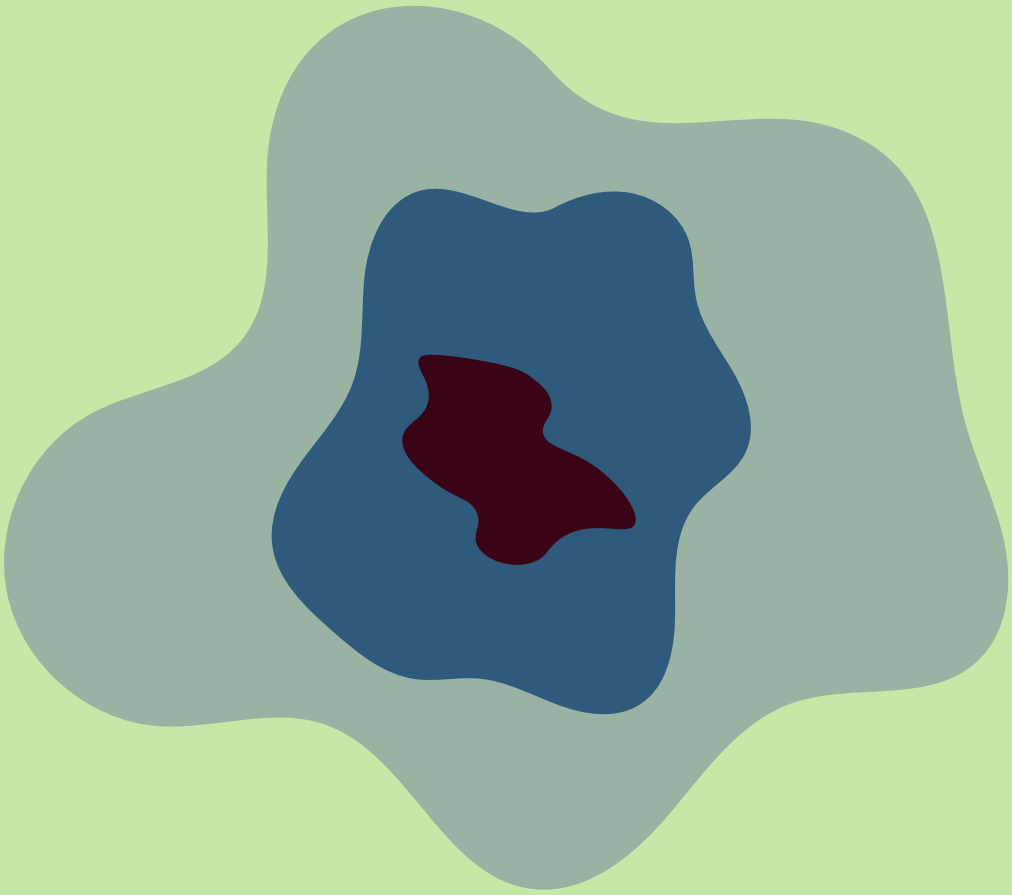
LEVEL 1

ACTIVITY 2

Oil spill estimates : Volumes



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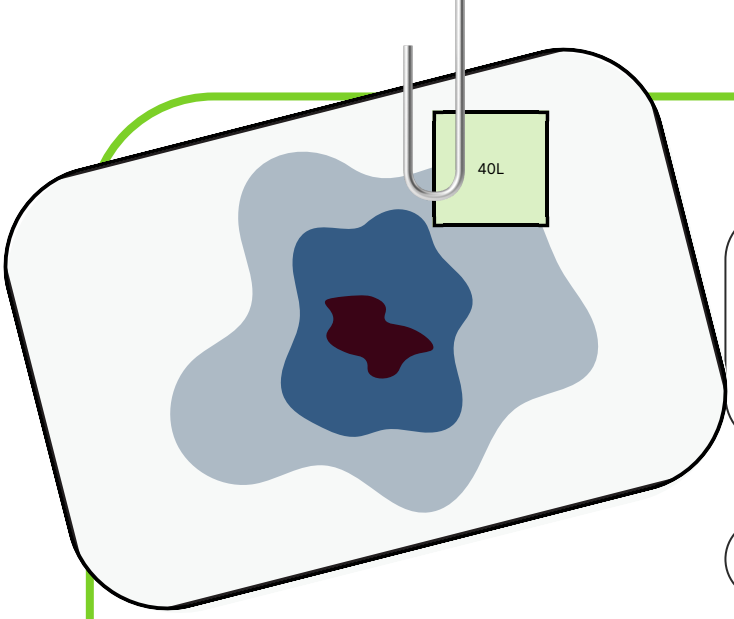


Mission sheet:
Oil spill estimates

Mission 2: Volume estimates

TOOLS

- The map of the oil spill
- Labelled tiles (green side)
- Isabel's tools: volumes
- A calculator (optional)

HOW TO

1. As a team, add the tiles to each zone, using the information from Isabel's tools.
2. Observe your model together and share what you notice.
3. Discuss the questions below, decide as a team, and agree on your answers.
4. Record your team's ideas and estimations in the mission sheet.
5. Be ready to explain your team's choices to the class.

TEAM ROLES

🧭 Navigator: Decides with the team where to place the tiles.
Name:
_____

🔢 Counter: Keeps track of tiles per zone.
Name:
_____

✏️ Recorder: Writes numbers, ideas, and reflections.
Name:
_____

🗣️ Presenter: Shares the team's model and reasoning.
Name:
_____

COUNTING THE LAYERS

How many layers are used in the dark zone?

_____ layers

How many in the blue zone?

_____ layers

How many In the grey zone?

_____ layers

COUNTING THE TILES

How many tiles used in dark zone?

_____ Squares _____ Triangles

How many in the blue zone?

_____ Squares _____ Triangles

How many In the grey zone?

_____ Squares _____ Triangles

ESTIMATING THE VOLUME

How many litres in dark zone?

_____

How many litres in the blue zone?

_____

How many litres In the grey zone?

_____

How many litres of oil have been spilled? _____

REFLECTION

Which zone do you think is most dangerous for sea life now, and why?

_____

_____

_____

_____

_____

METHOD

Is the zone with the most layers always the one with the most oil? Why?

_____

What else, besides the number of layers, helped you decide where there is more oil?

_____

_____

CLOSING REFLECTION

One thing I discovered today...

_____

One question I still have...

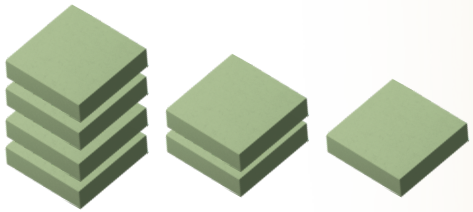
_____

One idea from my teammate that helped us...

_____

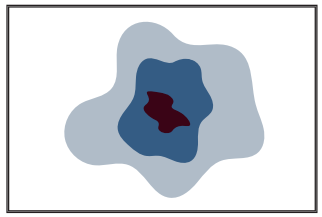
Isabel's tools: Volumes!

When we want to estimate how much oil has been spilled, we need to remember something important: oil is not only spread on the surface of the sea, it also has depth.
To explore this, we use the same square tiles as before, but now we place them in layers.



Each square covers the same surface as in the previous activity.
What changes is the number of layers, which shows how thick the oil is in each area.

The image of the oil spill shows that it is divided into three zones, each one with a different thickness.



Using this information, place the layers as follows:

- dark zone → 4 layers
- blue zone → 2 layers
- grey zone → 1 layer

Look carefully at both sides of the square tiles.
Which side do you think could help us understand how much oil there is?"

Mission sheet: Oil spill estimates

Mission 2, Step 2:

Planning the clean-up!

TOOLS

- The completed mission sheet of mission 2
- The cut up clean-up boats
- A calculator

PLANNER RULES

You have 8 rescue teams
1 team can clean 80 L per day
Each zone can have max 4 teams per day
The operation lasts 4 days

TEAM ROLES

🧭 Planner – decides how many teams to send where
Name: _____

🔢 Counter – checks the totals each day
Name: _____

✏️ Recorder – writes the plan & reasons
Name: _____

🗣️ Presenter – shares the strategy with the class
Name: _____

OBSERVE

Look back at the liters your team calculated for each zone.
Which zone has the most oil?

_____

Which has the least?

_____

DO!

Put the boats on the table to visualise how you can plan the operation!

THINK & DISCUSS

Which decisions were the hardest to make? Why?

_____

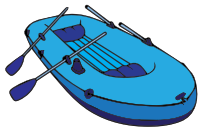
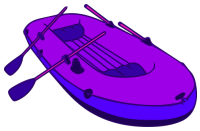
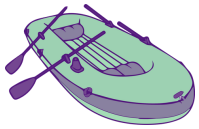
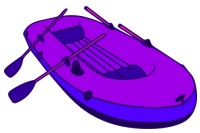
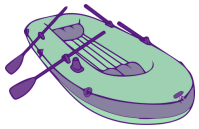
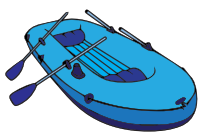
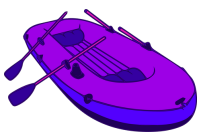
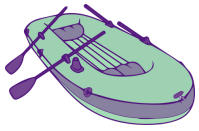
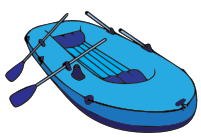
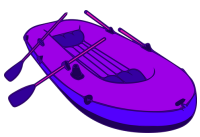
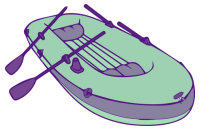
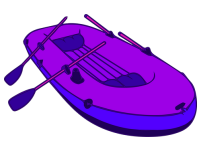
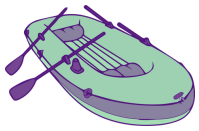
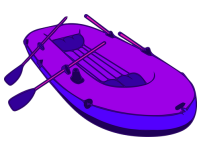
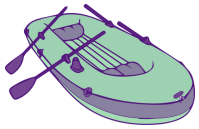
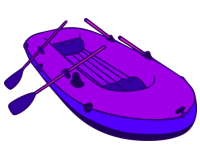
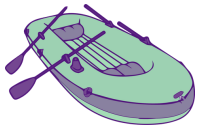
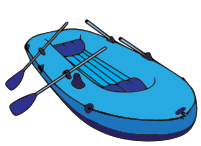
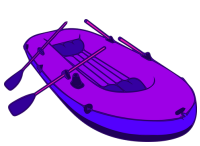
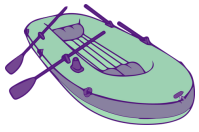
If you had more time or more teams, what would you change?

_____

Planning the clean-up!

Zone	Day 1	Day 2	Day 3	Day 4	Total teams	Total litres
Dark	___ teams	___ teams	___ teams	___ teams		
Medium	___ teams	___ teams	___ teams	___ teams		
Light	___ teams	___ teams	___ teams	___ teams		
Total	___ teams	___ teams	___ teams	___ teams		

Mission 2, Step 2: Planning the clean-up!

TEAMS DAY1	TEAMS DAY 2	TEAMS DAY 3	TEAMS DAY 4
			
			
			
			
			
			
			
			

Mission 2, Step 2: Planning the clean-up!

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