Mountain View Middle School

Name: _____ Period: _____

Unit 2

Convection Currents

As we work through the unit, add pictures and words that describe the unit to this cover page.

You need to make sure it is neat and that you use at least four colors

Table of Contents

Grade on last INB: _____
Why did you get that score? _____

_____

Goal for this INB: _____
How will you reach that goal? _____

_____

*Pages that count toward a summative grade

Self-Assessment

Unit Essential Question:

1. How does energy from the sun drive convection in the atmosphere and oceans?
2. How is convection related to the production of wind and ocean currents?

4	3	2	1
I can answer the essential question and I could teach the information to someone else.	I can answer most of the essential question and can teach some of the information to another person, but I still have some questions.	I understand what the essential question is asking, but I can only partially answer the question and cannot teach the information to someone else. I also still have many questions.	I do not understand the question and cannot answer any part of the question. I feel that I might not even know what questions to ask to get started.

1. I feel that I score a _____ on the rubric right now

2. I gave myself this score because: (use specific evidence from the rubric to justify your answer)

_____

_____

3. Review the essential question for the unit. Which can you answer right now? _____

4. Summarize what you think you know about the essential questions:

_____

_____

_____

5. Summarize what you think you need to learn first/next to answer the questions:

_____

_____

_____

6. What questions/wonderings do you have right now?

_____

_____

_____

Key Terms

Fill in the definitions as we go through the unit. Draw a picture to represent each word.

Word	Definition	Picture
Convection Currents		
Cyclone		
Global Winds		
High Pressure		

Local Breezes		
Low Pressure		
Ocean Currents		
Thunderstorm		
Wind		

Cross Cutting Concepts

As we go through the unit, see if you can identify where these cross-cutting concepts can be found.

- Patterns

- Cause and Effect

- Scale, proportion, and quantity

- Systems and system models

- Energy and matter

- Structure and function

- Stability and change

Date: _____

IN: Discuss the following with your group, then record your group's ideas

- What do you think causes wind?

_____

_____

_____

_____

_____

_____

_____

OUT: Right now, how would you describe a convection current?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

ENGAGE: Convection Currents

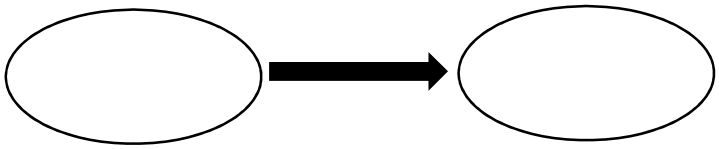
EQ: How does the heat of the lamp affect the movement of fluid in the lava lamp?

You will attach your drawing here after the activity

Convection Current Model Directions

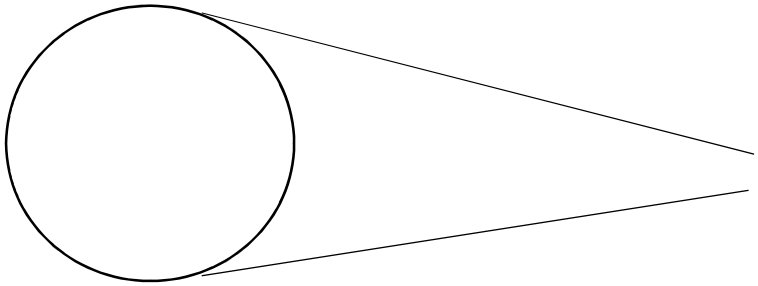
Directions:

1. Observe the motion of the glitter and fluid in the lamp.
    a. Look for direction of movement at the bottom, the top, in the center and along the glass
2. Draw a diagram of the motion on your sheet.
    a. Use lines to show the shape of the motion
    b. Use arrows to show direction of motion.
3. On the right side of the lamp, fill in the bubbles to show energy transfer



From To

4. Use the circles on the left to show how the molecules in the liquid are moving and their density at the bottom and the top.



5. Explain, in words, what is happening in the three areas of the lava lamp: top, middle and bottom

Gallery Walk

1) Walk around and look at what your teammates have drawn.
2) Pick one model that is not your own. Look at it carefully and write one question on a post-it note that you would ask about what is drawn. Place the note on the model
3) Repeat this questioning process two more times.
4) When you go back to your own model, carefully read the questions and see if you can answer the questions.
5) Attach your model to pg. 7

****

Modeling reflection

1. List the questions that your teammates asked you.
   a. _____
   _____
   b. _____
   _____
   c. _____
   _____
2. Right now, how do you think the motion of the fluid in the lava lamp relates to wind and ocean currents?

   _____
   _____
   _____
   _____
   _____

_____/10

Date: _____

IN: Where do you think the strongest winds happen?

_____

_____

_____

_____

OUT: Compare and contrast the cause and effects of Ocean currents and winds

Ocean currents	Both	Wind

EXPLORE: Convection Currents

EQ: How are convection currents formed and how do the create wind and ocean currents?

Complete the station lab, be sure to carefully read the directions at each station.

EXPLORE IT ____/5

Task Card #1

Similarities

Differences

Task Card #2

Task Card #5

Task Card #8

WRITE IT _____/6

Task Card #1

_____
_____
_____
_____

Task Card #2

_____
_____
_____
_____

Task Card #3

_____
_____
_____
_____

ILLUSTRATE IT

_____/5

ASSESS IT ____/4

#1 _____ #2 _____

#3 _____ #4 _____

READ IT ____/4

#1 _____ #2 _____

#3 _____ #4 _____

RESEARCH IT _____/5

1. _____
2. _____
   _____
   _____
   _____
3. _____
   _____
   _____

ORGANIZE IT _____/5

WATCH IT _____/6

Task Card #2

_____
_____
_____
_____
_____

Task Card #3

_____
_____
_____
_____
_____

Task Card #4

_____
_____
_____

Total for Lab _____/40

Date: _____

IN: Brainstorm a list of places a convection current might happen.

_____

_____

_____

_____

_____

OUT: Describe the results of convection currents in the following places.

1. Ocean

   _____

   _____

   _____

   _____

2. Atmosphere

   _____

   _____

   _____

3. Mantle

   _____

   _____

   _____

   _____

EXPLAIN: Convection Currents

EQ: What is the effect of convection currents in the oceans, atmosphere and mantle?

Directions: Follow along with the presentation to fill in the foldable then attach it on this page.

Attach foldable here

Tonight transfer the information onto the notes on pg. 16-17

Cornell Notes	Topic/Objective:	Name:
		Class/Period:
		Date:

Essential Question:

Questions:	Notes:

Summary:

Cornell Notes	Topic/Objective:	Name:
		Class/Period:
		Date:

Essential Question:

Questions:	Notes:

Summary:

Date: _____

IN: Draw a picture of a convection current. Identify the heat sources and direction of fluid movement.

OUT: Why did you choose to do the project in the format that you did?

ELABORATE: Convection Currents

EQ: How can you model convection currents?

Directions:

You will design a demonstration that shows how the sun provides the energy that drives convection within the atmosphere and/or oceans, producing winds and ocean currents. Present your demonstration using one of the following options.

Prezi

PowerPoint

Photo Shoot

Video

Student Choice

Planning sheet

My presentation format: _____

I will model the sun using: _____

_____

I will model the convection currents using: _____

_____

_____

_____

I will model wind and/or ocean currents using: _____

_____

_____

_____

Materials I will need: _____

_____

_____

_____

I might need help with: _____

_____

_____

_____

Drawing/brainstorming section

Grade Sheet

Use this to help you plan out your project and check for completion.

REMEMBER NO late presentations will be accepted

Points	Indicator
_____/10	Appropriate representation of the Sun
_____/20	Current flow is shown with direction of flow indicated correctly
_____/30	Transfer of energy from sun to atmosphere or oceans indicated correctly
_____/20	Changes in temperature shown correctly
_____/10	Attractive presentation with no spelling errors
_____/10	Turned in on time
_____/100	Total points

Date: _____

IN: Why is it so important to understand convection currents?

_____

_____

_____

_____

_____

_____

OUT: What was the best demonstration or model of convection currents? Why do you think it was best?

Creator: _____

Describe the demonstration:

_____

_____

_____

_____

_____

_____

Why did you think it was the best?

_____

_____

_____

_____

_____

Cornell Notes	Topic/Objective:	Name:
	Convection current model Presentations	Class/Period:
		Date:

Essential Question: How can you model convection currents?

Questions:	Notes:

Summary:

EVALUATE: Convection Currents

Before you take the assessment:

What is your goal grade? _____

After the assessment:

My unit assessment grade: _____

Did you make your goal? _____

Why or why not?

_____

_____

_____

_____

_____

_____

What will I do to improve for the next unit?

_____

_____

_____

_____

_____

_____

Attach your assessment to this page when it is returned to you.

Final Convection Current Modeling revision

Reread the directions on pg. 6.

Attach model here after the activity

Modeling reflection

1. **How does the heat of the lava lamp affect movement of fluid in the lava lamp?**

   _____

   _____

   _____

   _____

2. **How is the motion of the fluid in the lava lamp similar to the motion of the air in the atmosphere?**

   _____

   _____

   _____

   _____

3. **How is the motion of the fluid in the lava lamp similar to the motion of the water in ocean currents?**

   _____

   _____

   _____

   _____

4. **Is the lava lamp a good model for convection current? Why or why not?**

   _____

   _____

   _____

   _____

   _____

Self-Assessment

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_____

INB grade

Category	YES	PARTIAL/ INCOMPLETE	NO
Is the cover page intact?	2	1	0
Does the cover page have color?	2	1	0
Are there any missing pages?	2	1	0
Are the learning goals filled out?	2	1	0
Is there a name and period on the packet?	2	1	0
Total	/10		

Page Number	FULL CREDIT	LATE	NO CREDIT
6	5	3	0
10	5	3	0
14	5	3	0
18	5	3	0
22	5	3	0
TOTAL	/25		

Total Score: _____/ 35

Full Credit = only the completed stamp
Late = both stamps
No credit = incomplete stamp or no stamp