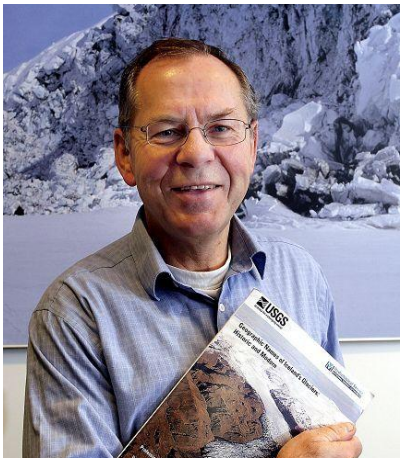
What story brought you here? What story are you building? What story will you tell after the conference?



Our Guide: Oddur Sigurdsson

Introduction:
We will use this field guide to help support our time on the trips between Reykjavík to Höfn on the workshop bus.

There is information we will use to structure our observations, interactions and recordings on the bus and reference materials that may be helpful or interesting to you as you travel to and from Höfn & the conference venue.

Bus Guide Contents:

8. Site Guide - Info for each stop - Eastbound and Westbound
9. Sharing structures
10. Technical drawing - how to
11. Schedules - for Eastbound and Westbound workshop bus
12. Geological maps - workshop bus route and Iceland
13. Icelandic language pronunciation & letter guide
14. Some Songs, Sagas, Poetry, Stories & Histories of Iceland
15. History of iceland
16. Vacation Mad Libs
17. Field Guide

1. Make your Name Tag!

- Pick a Lego minifigure name tag that connects with who you are in some way: educator, storyteller, artist, scientist, etc...
- Add a PEI sticker or two
- Add your name & hang it on the lanyard you brought!
- Ready to get on the bus!!

Frame 1:
Storytelling is universal

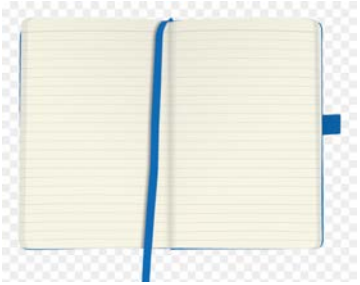
Frame 2:
The Poles connect to us all

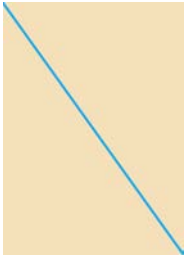
Key Questions for our journey:

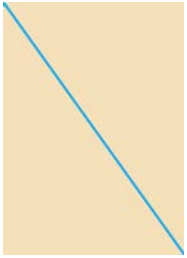
How do you relate to this place?
What do you wonder about here?
What evidence do you notice of a changing landscape?

2. Structure your journal/ field notebook pages:

Reserve five pages (page = front and back) of the notebook or journal you brought with you and set them up for use with this guide:







On the first page

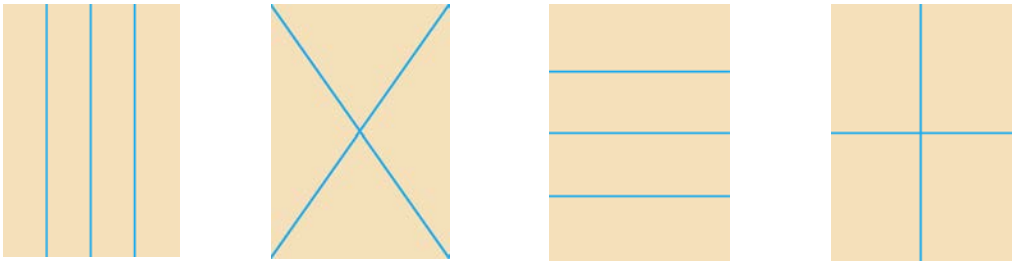
- Write the heading "**BUS TOUR - Senses**" on the front of the page
- Divide the front into 4 equal quarters & label each triangle with a sense: "**Sound**", "**Feel**", "**Smell**", and "**Taste**"
- Divide the back of the page diagonally into 2 equal halves & label each triangle "Macro" and one "Micro"

On the second page

- Write the heading "**Weather Observations**" on the front of the page
- Divide the back of the page in half the long way - making 2 columns or sections

On the third page

- Divide front and back into four parts – any way you like



On the fourth page

- Write the word "STORIES" in the middle of the front of the page
- On the back, draw a rectangle in the middle of the page

On the fifth page

- Write the heading "Parking Lot / Questions" on the front of the page

3. Ideas on your postcard...

- You will write what you observe about Iceland on a postcard by adding to the map of concepts as you notice things out of the window during the ride to Höfn.
- Circle on the mini-map where you think we will see your postcard picture!

- Keep a hold of it. You will be using it for several things today and again, later at the conference.

4. on your phone...Hashtag it!

- We will be using PEI conference branded hashtags to encourage you to share user-generated content
- We encourage you to jump on trending hashtags to create popular content about the conference

Post your pictures, poems, drawings and snaps during the conference via social media accounts connecting to Polar Educators International

- Instagram your observations including **@polareducators** - and use **#PEI2022_iceland #stories_in_ice** so we can repost your contributions
- On Twitter, follow us **@polareducators** and we will follow you - when you tweet we will retweet.
- On Facebook, follow us **@polareducators** and post directly to the **Group**

partners to include			
@APECS4u	@iascarctic	@SCARAntarctic	@_arctic_circle
@IASSA_Arctic			
Conference hashtags			
#PEI2022-Iceland	#PEI_Stories_In_Ice	#arctic	#asm3
#education	#science	#polar	#educators
#STEM	#indigenous	#arts	#ice
trending hashtags			
#teaching	#learning	#datascience	#climateaction
#edu	#scicomm	#teachersofinstagram	#educationmatters
#student	#community	#teachersoftiktok	#research

5. Tips & Tricks

Twitter Tips

- Include #[hashtags] and @[handles] to connect with others and reach a broader audience and generate a #buzz or join a #trend
- To encourage others to share your tweet add **prt** please retweet
- Photos/video are always good to include in tweets—they increase engagement!

Instagram Tips

- Can only post to Instagram through your phone app (not computer) so you may need to download the Instagram app and sign up
- Always tag us! **@polareducators**
- Tagging us in your Instagram Stories allows us to repost it to PEI stories #[Hashtags] and account @[handles] work the same way Twitter does
- Captions have no character limit - be personal and creative! Don't include links here.

6. Weather Observation: Eastbound towards Höfn

On the second page of your notebook think about and record your responses to these prompts about the weather at some point eastbound:

- **Give the Time-Date-Location to your observation.**
- **Describe all the aspects of the weather that you notice.**
- **If you were at home, what would the weather do next in this situation?**
- **How has the weather been changing today so far?**

6. Weather Observation: Westbound towards Reykjavík

On the second page of your notebook, add another observation to the one you made on the first day. Try to do it either at a similar time of day as your first observation OR close to the same physical location.

- **Give the Time/Date/Location to your observation.**
- **Describe all the aspects of the weather that you notice.**
- **If you were at home, what would the weather do next in this situation?**
- **How has the weather been changing today?**
- **Have you noticed any patterns in the weather here so far?**
- **Tomorrow I think the weather will be.....**

7. As you go...

While you are on the bus, be mindful. When your attention is starting to flag, try one of the following techniques to help refresh your mind and get refocused.

Draw in passing-just a glimpse-speeding by

Make 5 small squares post-it note size, pencil or pen

Do 5 quick line drawings in different squares of paper, describing what you glimpse from the bus window. You will not be able to see details, just shapes and impressions, as things whizz by!

Write the land in words

A corner of a page in your notebook & an ink pen

Set a timer on your phone for 60 seconds. Looking out of the window of the bus, use automatic writing to write what you see without stopping- write whatever comes into your mind very quickly and continuously as you look at the landscape (don't stop).

Observational drawing - Space and relationships

A page in your notebook & an ink pen

One way of drawing a scene in front of you is to draw the outline shape of spaces between things, rather than trying to draw outlines of the actual solid things you see.

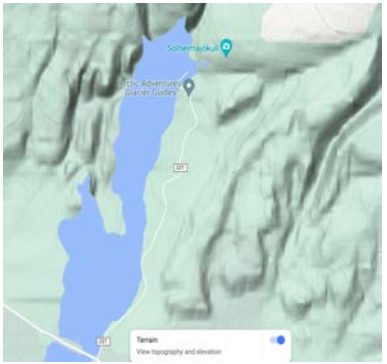
Observational drawing - 3 Tone drawing

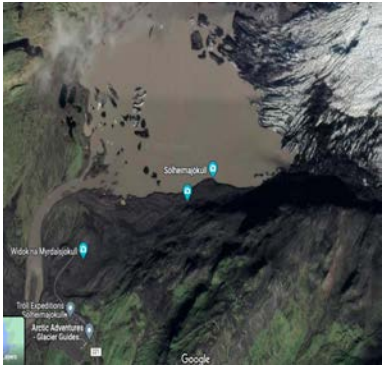
Paper, graphite or charcoal, eraser

Cover the whole sheet of paper with graphite, and use an eraser to remove the lighter areas of the scene you are drawing. Simplify the shapes.
You can extend the drawing by using a darker pencil and blacking in the really darkest shapes of the scene you are drawing

8. Site guide: Eastbound towards Höfn

Sólheimajökul *Sun World Glacier*	Walk, learn, observe, listen and draw Prompt Use all your senses - LISTEN to the land





Activities -

- Hike to the glacier terminus 15-20 mins
- Explore and draw at the glacier terminus (Oddur) 15-20 mins
- How do you measure a glacier?

Not steep, gravel path, wear hiking boots, warm/ windproof clothes

Draw how it sounds

Outside, find somewhere to perch or sit and a surface to support your journal (your partner's back, a shoulder, the grass or wall). Open a double page of your journal & find two soft pencils. Hold one in each hand and start listening

Where are the sounds coming from? Are they loud or soft? near or far? sharp and intermittent or continuous and humming? do they fade in and out or are they sudden, intense, annoying, melodic, asynchronous?

- Close your eyes, place your pencils on the paper. Listen for 60 seconds
- Begin to move your pencils across the paper in response to sounds.
- Consider where your pencil should start on the paper - in a corner? up high? down low? Consider how your hands move with the sound? Should they travel or linger? Push, drag or slide? Strike or tickle?
- Let your hands dance to the sounds - changing direction, speed, pressing harder or softer with pencil on paper. Use the whole page
- When the sounds change, alter the pattern of marks you make
- When a sound stops, lift the pencil off the paper and wait for a new sound to start again. Fill the page.

Back on the bus Compare your drawing with someone else's

Draw how it feels

Outside, find something in the landscape to touch (ice, moss, rock, etc.) Close your eyes and carefully feel the shape, weight, texture, temperature of the thing you found with your fingertips.

Does it feel solid or porous? Spikey or smooth? Delicate? Rough? Cold? Was anything unexpected? Does it remind you or anything else? Did you enjoy the sensation or find it unpleasant?

- Open a double page of your journal and without looking at the thing you felt, note down words that come to mind to describe the experience: how it felt to the touch & how you felt when you touched it
- Match each word with a kind of mark you'd like to make on the paper e.g. quick/slow and deliberate? hard or soft? dots and dashes or long flowing lines? Many dense marks or a few widely spaced ones? up & down marks? Criss cross? Swirls and spirals? Sharp corners? Big marks or small? what ever fits the word and the feeling
- Draw a simple outlines depicting the approximate shapes of what you touched - fill these with the marks you have created. Take your time

Back on the bus Compare your drawing with someone else's

Colour how it smells

This time you will use your nose to choose colour to represent smells and create a colour key. Outside: Close your eyes and focus on what you can smell - at first you may not notice them, so be patient.

Begin to describe each smell in words. How will you do this? What does the smell remind you of? Is it new to you and you need new words? Was it agreeable or disagreeable? Natural or unnatural?

It's up to you which colour you choose for your key - but think about the following

- Hue (name of the colour - you can make this up)
- Saturation (how strong or weak the intensity of the colour is)
- Brightness (how luminous/dark or light)

How many different Icelandic smells can you colour code?

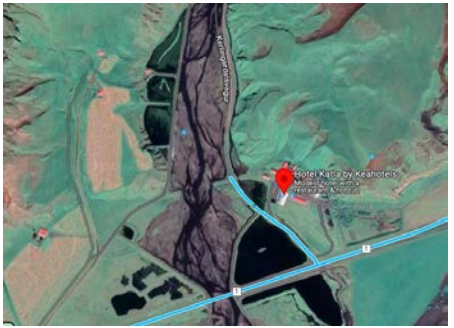
Back on the bus Compare your smell colours with someone else's

The Taste Challenge

Your guide will set a challenge for you!

- Find a friend, and take snaps or video on your phone of how they react to the challenge
- With their permission upload and hash tag these to one of the social media platforms you are familiar with

Back on the bus Laugh and share with someone else

Hotel Katla & surroundings	Eat, rest, reflect. **Prompt:** What have you noticed so far? What do you wonder about?	
		

Activities

- 1 hour to have lunch near a volcano and listen to our Guide
- Think about the new things you have seen, touched, heard, smelt, tasted and learned!
- Add concepts to your postcard and to your Journal

Reflect

Find your page divided into 4 parts in your journal

Pick one of the quarters and label it “Reykjavík to Katla”

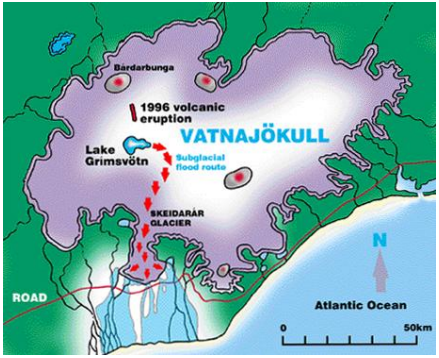
Reflect on your experience so far - what images stand out in your mind? Did you learn something new? What did the Guide help you to notice? What kind of environment have you been moving through and how is it different and similar to home?

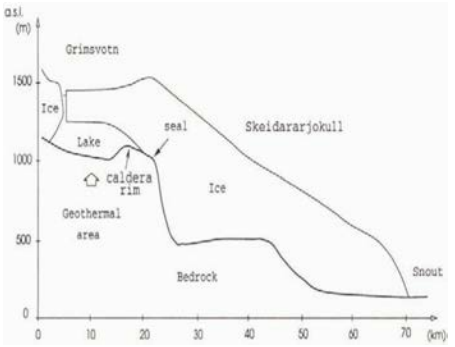
- In the “Reykjavík to Katla” section write down at least 5 words that encapsulate what you have experienced so far.
- Write down at least one question that you are wondering about.
- Surround your words and question(s) with line doodles that indicate how you are feeling about the words and questions
- Be mindful - are you making energetic, excited lines? passionate doodles? are your marks minimal or overwhelming?

Back on the bus Compare your smell colour key with someone else’s

Grímsvötn Jökulhlaup “glacier leap”

This is an ‘out of the bus window’ story experience



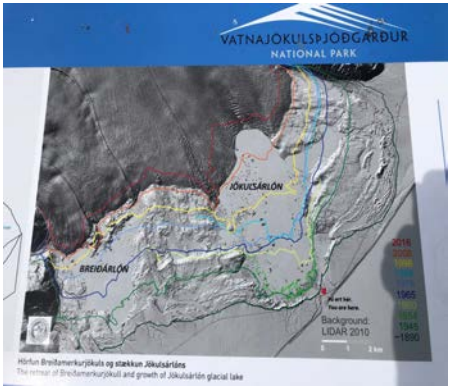


Icelanders will long remember November 5, 1996. On that day the largest flood in living memory swept from the terminus (bottom end) of Skeiðarár Glacier. Icelanders call such sudden drainage events ‘jökulhlaups’, ‘glacier bursts.’ It is these that lead to mega-scale flooding with devastating consequences. In this particular event the subglacial lake, Grímsvötn, which lies above the caldera of a volcano underneath Vatnajökull burst

On the bus Time how long it takes to cross the site of this megaflood

Jökulsárlón
"Glacier River Lagoon"

Explore, Draw & Photograph Prompt: Think about scale - Macro and Micro - of the landscape around you



Activities 1.5 hours to explore the lagoon, the beach and listen to the Guide

- Visit a calving glacier **Breiðamerkurjökull** at the lagoon
- Explore the mini bergs and rock formations at the famous diamond beach
- Learn from the Guide about glacial ice breaking off of the glacial tongue into the Lagoon & slowly making its way into the sea as diamond shaped blocks

Not steep but uneven ground, wear hiking boots, warm/ windproof clothes

Draw

Outside, pick a spot to really notice the grand scale of the landscape around you and pick a second spot to notice something very small that you have to get close up with to see the magnifier

While you are outside, think about the large scale and small scale as you take photographs. What pictures can you make to represent the feel of the entire space? What kind of image will describe the micro scale best? Will your images show something unexpected about the area? Or something very typical?

On the reverse side of the diagonally divided first page in your notebook

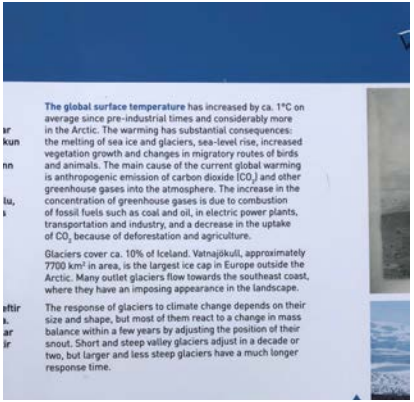
- Sketch the whole 360° profile of the landscape, picking out the major points of interest of your **MACRO** spot on your page.
- On the second half of the page, draw a circle in the middle of the space that touches the edges of the remaining space.
- Use a hand magnifier to look at something up close at your **MICRO** spot and spend some time drawing what you see in the circle on your paper.
- In the remaining space in your MICRO circle, pay attention to the glacial features that you see at this site. Record in words or diagrams what parts of the environment have been shaped by water activity, both frozen and liquid.

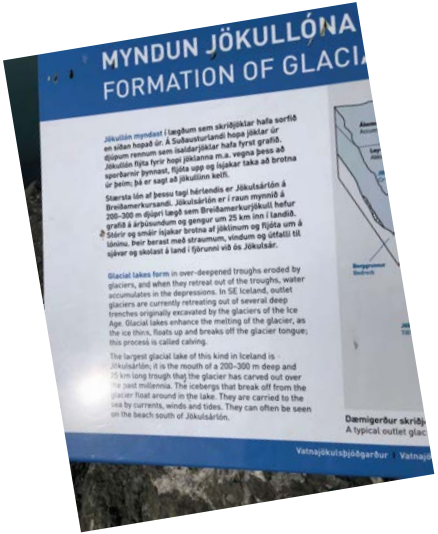
Photograph

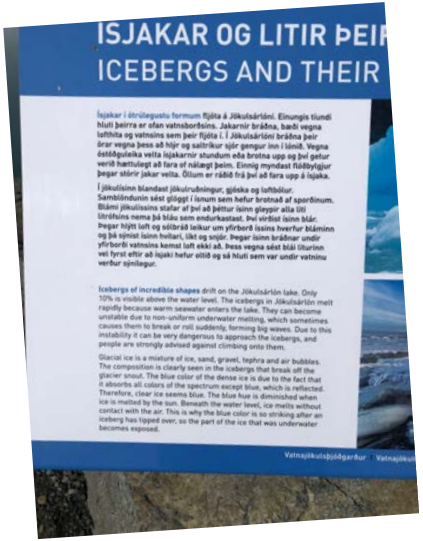
While you are outside at this stop, also think about the large scale and small scale as you take photographs.

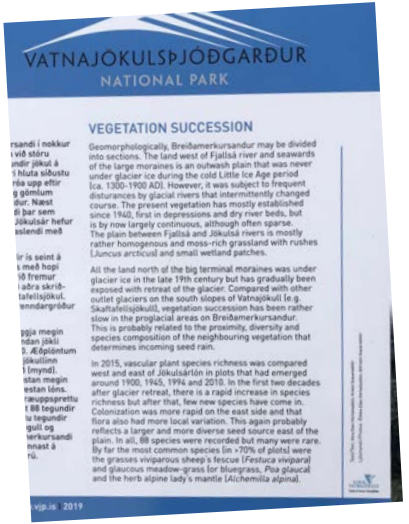
- **What pictures can you take to represent the feel of the entire space?**
- **What images will show the micro scale best?**
- **Will they show something unexpected about the area? Something very typical?**

Lookout for information at each stop for your concept map




MYNDUN JÖKULLÓNA
FORMATION OF GLACI
Jökulsárlón
Bergmassi
Bedrock
Dæmigerður skriðj
A typical outlet glac
Vatnajökulsþjóðgarður


ÍSJAKAR OG LITIR ÞEI
ICEBERGS AND THEIR
Ísjakar í ótrúlegustu formum fljóta á Jökulsárlóni. Einungis tíundi hluti þeirra er ofan vatnsborðsins. Jakarnir bráðna, bæði vegna lofthita og vatnsins sem þeir fljóta í. Í Jökulsárlóni bráðna þeir örar vegna þess að hlýr og saltríkur sjór gengur inn í lónið. Vegna óstöðugleika velta ísjakarnir stundum eða brotna upp og því getur verið hættulegt að fara of nálægt þeim. Einnig myndast flóðbylgjur þegar stórir jakar velta. Öllum er ráðið frá því að fara upp á ísjaka.
Í jökulsinn blandast jökulruðningur, gjóska og lofthöður. Samblöndunin sést glöggt í ísnum sem hefur brotnað af sporðinum. Blámi jökulsissins stafar af því að þéttur ísinn gleypir alla lit útrófsins nema þá bláu sem endurkastast. Því virðist ísinn blár. Þegar hlýtt loft og sólbrá leikur um yfirborð íssins hverfur blárninn og þá sýnist ísinn hvítari, líkt og snjór. Þegar ísinn bráðnar undir yfirborði vatnsins kemst loft ekki að. Þess vegna sést blái liturinn vel fyrst eftir að ísjaki hefur oltið og sá hluti sem var undir vatninu verður sýnilegur.
Icebergs of incredible shapes drift on the Jökulsárlón lake. Only 10% is visible above the water level. The icebergs in Jökulsárlón melt rapidly because warm seawater enters the lake. They can become unstable due to non-uniform underwater melting, which sometimes causes them to break or roll suddenly, forming big waves. Due to this instability it can be very dangerous to approach the icebergs, and people are strongly advised against climbing onto them.
Glacial ice is a mixture of ice, sand, gravel, tephra and air bubbles. The composition is clearly seen in the icebergs that break off the glacier snout. The blue color of the dense ice is due to the fact that it absorbs all colors of the spectrum except blue, which is reflected. Therefore, clear ice seems blue. The blue hue is diminished when ice is melted by the sun. Beneath the water level, ice melts without contact with the air. This is why the blue color is so striking after an iceberg has tipped over, so the part of the ice that was underwater becomes exposed.
Vatnajökulsþjóðgarður


VATNAJÖKULSÞJÓÐGARÐUR
NATIONAL PARK
VEGETATION SUCCESSION
Geomorphologically, Breiðamerkursandur may be divided into sections. The land west of Fjallsá river and seawards of the large moraines is an outwash plain that was never under glacier ice during the cold Little Ice Age period (ca. 1300-1900 AD). However, it was subject to frequent disturances by glacial rivers that intermittently changed course. The present vegetation has mostly established since 1940, first in depressions and dry river beds, but is by now largely continuous, although often sparse. The plain between Fjallsá and Jökulsá rivers is mostly rather homogenous and moss-rich grassland with rushes (Juncus arcticus) and small wetland patches.
All the land north of the big terminal moraines was under glacier ice in the late 19th century but has gradually been exposed with retreat of the glacier. Compared with other outlet glaciers on the south slopes of Vatnajökull (e.g. Skaftafellsjökull), vegetation succession has been rather slow on the proglacial areas on Breiðamerkursandur. This is probably related to the proximity, diversity and species composition of the neighbouring vegetation that determines incoming seed rain.
In 2015, vascular plant species richness was compared west and east of Jökulsárlón in plots that had emerged around 1900, 1945, 1994 and 2010. In the first two decades after glacier retreat, there is a rapid increase in species richness but after that, few new species have come in. Colonization was more rapid on the east side and that flora also had more local variation. This again probably reflects a larger and more diverse seed source east of the plain. In all, 88 species were recorded but many were rare. By far the most common species (in >70% of plots) were the grasses viviparous sheep's fescue (Festuca vivipara) and glaucous meadow-grass for bluegrass, Poa glaucal and the herb alpine lady's mantle (Alchemilla alpina).
vjp.is | 2019


The Jökulsár lagoon
Coastal erosion


1945
1965
Formation of the lagoon
At the time when the first settlers arrived in Iceland, the snout of Breiðamerkurjökull, an outlet glacier of the great glacier Vatnajökull, is thought to have been about 20 km further north than it is now. The glacier began to cool in about the year 1200, the bold spell reaching a peak in the period 1600-1900, which is sometimes known as the "Little Ice Age". As a result, the glacier advanced until about 1890, reaching a point only about 1 km from the coast at Jökulsá river. The eastern part of the glacier eroded the sediments of Breiðamerkurlandur to a depth of up to 300 m below sea level, the sediment being carried forward by the river Jökulsá. Without the river the glacier could not have eroded such a deep basin, because it is the river that carries the sediment to the sea.
The warm period from 1920 to 1965 caused great changes in Breiðamerkurjökull glacier. It retreated very quickly, leaving a lagoon up to 190 m deep where the glacier snout had been, and several kilometers of glacial moraines were exposed on both sides of the lagoon. The lagoon grew from 6 km² in 1975 to nearly 18 km² in 1998. Large blocks of ice break off the edge of the glacier, which is about 30 m high, keeping the lagoon stocked with icebergs.

Hali “Cow’s Tail”	Rest, refresh, culture & creativity. Prompt: Search for evidence of traditional technologies	
		

Activities **30 minutes tea/coffee/visit Thorbergur Centre & museum**

- *tea and cake*
- *scavenger hunt in the museum*
- *add to your journal and the concept map on your postcard*

The Thorbergur Centre was built in memory of the most significant Icelandic writers of C20th, Þórbergur Þórðarson (1888 – 1974), who was born in Hali. There is a heritage museum and unique exhibitions of the district Sudursveit and the story of the writer Þórbergur Þórðarson's life and work.
While you are here think about how language can hold knowledge and cultural identity
https://hali.is/museum-and-cultural-center-in-the-south-east-of-iceland/

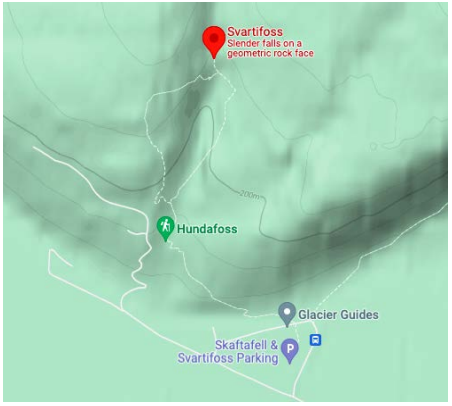
Find the third page in your journal that you divided into 4 and one label one quarter "Hali Museum"

Scavenger hunt!

- Search the museum's displays for evidence of traditionally made technologies that helped people survive and thrive in Iceland's extreme climate and its volcanic, glacial and post glacial environment.
- Keep track of your findings in your journal & add a word to your postcard
- What did you have for tea?

Back on the bus Compare and contrast what you discovered

8. Site guide: Westbound towards Reykjavík

Svartifoss waterfall “Black Falls” Vatnajökull National Park	Wrap up & walk, weather-watch, photograph **Prompt:** What do you notice about a new location? Why do you think you notice those things?	
		 
Activities **1.5 hours to walk and listen to the Guide -** short and easy trails		

- Hike to Svartifoss waterfall
- Skaftafell - Hexagonal columnar black basalt
- Skaftafellsjökull glacier tongue, fed from the Vatnajökull Icecap (Oddur may be able to get the bus to drive up the hill)

Wet! Wear hiking boots, warm/ waterproof/windproof clothes

Svartifoss is a typical Icelandic 66 ft (20 m) waterfall, combining 'ice' water from the Stórilækur river fed by the Vatnajökull Icecap and 'fire' in the form of a crystalline lava flow. The hexagonal basalt columns formed during rapid cooling and contracting of basalt based lava. This type of lava has high concentrations of iron and magnesium, which helps to speed up the cooling process resulting in a unique structure of jointed hexagonal columns

You'll need the timer on your phone or a friend to time you & the reverse of your 'weather observations' journal page + pen

- Pick a spot on the hike to rest, that strikes you as memorable/interesting
- Use the reverse of the page with your weather observations on it
- Have a pen/pencil within reach but do not pick it up yet

Draw from a visual impression

- Stare intently at the scene you want to draw for 30 seconds. Drink it all in with your eyes, let it make a visual impression and try to remember
- Turn your back on the scene and draw it *as you remember it* for 30 seconds (don't be tempted to turn around, see the image in your mind)
- Take a photo of your drawing with your phone and look at it
- Note which areas lack detail or that you feel are missing
- Turn around and look at the scene again for just 10 more seconds
- Turn away and give yourself a further few seconds to add the details
- Take another photo and post it with a hashtag on one of the social media channels

Back on the bus **Discuss the drawing experience with a partner, comparing the drawings, photos, and the scene itself. What surprised you? Do you see any connecting themes with things you tend to notice in a new location?**

Skeiðarársandur	This is an ‘out of the bus window’ story experience	
		
Our Guide will explain the mystery of the black desert of Skeiðarársandur - A new forest in making		

Skeiðarársandur	Brief roadside stop Prompt: Breathe in, breathe out		
			
There is a famous ship buried in the Skeiðarársandur outwash plain - Het Wapen Van Amsterdam. It ran aground in 1667 returning from the East Indies loaded with jewels, metals, spices and silk. Several attempts have recently been made to recover the wreck but no success so far			
Breathe			

- Find a quiet spot to take a moment to pause and breathe in your surroundings. Count silently - in for 5 seconds and out for 7 seconds

Back on the bus **What is treasure for you?**

Kirkjubæjarklaustur "Church Farm Convent"	**Lunch and Explore surroundings** **prompt:** Use video to capture sound and motion	
		

Activity - **1 hour for lunch (Hotel Klaustur) and exploration**

- Outside - stop and think about the sounds you are hearing and things you see *in motion*

Klaustur has a rich history dating back to before the first Norse settlement in Iceland, when Irish monks are thought to have lived here. The town's original name was 'Kirkjubær' which literally means 'Church town'. In 1186 a convent of Benedictine nuns settled in Kirkjubær and remained there until the Reformation in 1550. 'Klaustur' meaning 'convent' was added to the town's name. Many local landmarks have names referring to the convent's history, Systrastapi ("the Rock of the Sisters"), Systrafoss ("the Waterfall of the Sisters) and Systravatn ("the Water of the Sisters")

Make moving Images

Choose something in motion that will remind you of this moment in Iceland

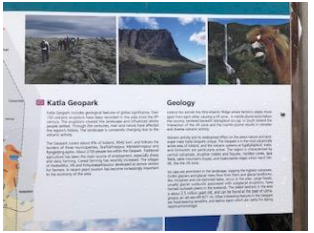
- Take several short videos to show this phenomena or sound from a variety of angles or in multiple ways
- Reflect on what you have learned and experienced during your time here

Back on the Bus share what you captured with a partner. Did it move you?

Lookout for information at each stop for your concept map


HOTEL KLAUSTUR


ABOUT THE PARK
Vatnajökull National Park covers about 14,000 km². The park, centred round the ice cap, has some of the world 's most active volcanoes. Natural disasters have shaped human life, and the interplay of eruptions, glaciers and meltwater has created this unique and dynamic nature. Global warming is causing rapid changes in the ice cap with unforeseeable consequences.
VATNAJÖKULL NATIONAL PARK – WEST TERRITORY
The west territory of the national park contains areas of pristine wilderness and unique geological formations, created by volcanic eruptions on long fissures, forming surface features such as hyaloclastite ridges and crater rows. Kirkjubæjarklaustur is the administrative centre of this part of the park. Park rangers are located in Skaftárstofa visitor centre here in Kirkjubæjarklaustur and in the service areas in Eldgjá, Laki, Hólaskjól, Eldgjá, Langisjór, Hraunsjór and Nýidalur during the summer. All roads are mountain tracks, only navigable for four-wheel-drive jeeps.
SKAFTÁRSTOFA
SKAFTÁRSTOFA VISITOR CENTRE


Katla Geopark
Geology

Skaftáreldahraun
"Lava of the Skaftá river fires (eruption)"

Prompt: Connect stories to the land

Activity **Brief roadside stop ~ 10 minute**

- lava flows
- touch and taste challenge
- storying

Storytelling

- Use the final two quarters of the page divided in 4 in your journal
- Record what you notice when you touch and taste things as your guide directs you
- Add concepts to your postcard

What parts of the stories connected to this place can you touch at this stop?
What parts of the stories connected to this place can you taste?
Do they feel different from what you expected them to?

Back on the Bus

Reynisfjara "Rowan Beach"	Prompt: Connect to cardinal direction - Where is the sun?	
		
Activity	**1 hour to explore & listen to guide**	

- **Observing the wave action with unbroken current of water from Antarctica**
- **Coastal rock formations**

Caution: Extremely dangerous waves by Reynisfjara and Kirkjufjara black sand beaches. Never turn your back to the sea or waves here or go onto the beach. The occasional 'surge' wave has so much power it comes creeping up and has the power to take your feet and the undertow sucks you away fast.

Do not climb the basalt to reach the puffins. Caves with overhangs are unstable and unpredictable. The beach is less safe than it looks.

Draw to locate yourself

Turn to the reverse of your fourth page (with a rectangle drawn in the middle of the page). You have a wide frame running around the 4 edges of the page. Each side will be cardinal direction - East - South - West - North

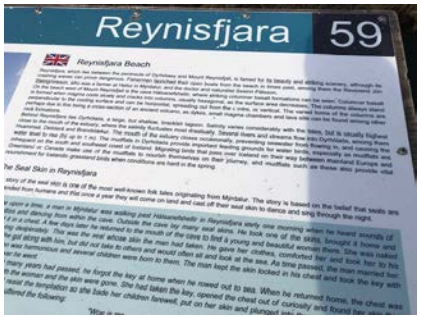
Draw a compass Rose in the middle of the rectangle

Outside, pick four spots where you feel drawn to and spend a few extra minutes adding to your journal.

- **Face East, rotate your journal so the “East” edge of the paper is horizontal & draw a doodle sketch of the landscape and sky you see in that direction across the whole section.**
- **Face north, and draw a doodle sketch of the landscape in that direction along the north edge of the page**

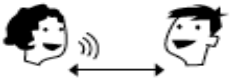
- **Face west, rotate your journal so the “West” edge of the paper is horizontal and make a doodle sketch of what you see in that direction.**
- **Face south and draw what you see along the bottom edge of your frame. Think about the vast expanse of ocean between you and Antarctica in this place!**

Lookout for information at each stop for your concept map



Back on the Bus

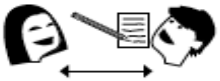
9. Sharing structures



Rally Robin

- In pairs
- Take turns stating responses to a question

Rally Table



- In pairs
- Take turns writing, building something or sharing written ideas

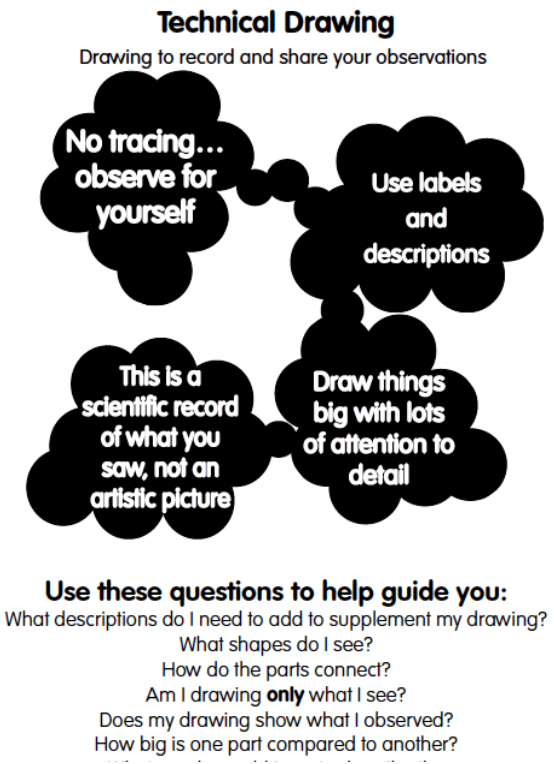
Round Table

- In teams (groups of 3-5)
- Take turns writing, building something or sharing written ideas

Round Robin

- In teams (groups of 3-5)
- Take turns talking
- Give answers or solutions

10. Technical drawing - how to



Watch the following videos for some techniques to help your drawings represent more closely what you observed AND to help use the process of drawing allow you to notice more about the object you are drawing.

How to draw anything with the help of basic shapes

How to make an observational drawing

How to draw objects in perspective

How to draw things the size you want

What words could be used to describe the shape, size, color, smell, texture, sound or other features? Add them!

11. Workshop Bus Schedule

Day One - Eastbound
An introduction to Iceland: Land, History & Language

Time	Programme	Activities
7:30-8:45	**Registration - Grand Hotel, Reykjavík**	Check in & collect conference resources pack
8.45-9:00	**Boarding PEI Workshop Bus**	Workshop Bus will depart from the Grand Hotel Reykjavík
9:00	**Depart Reykjavík**	Workshop Bus will depart promptly at 9:00

	9:00-11:00	**Reykjavík to Sólheimajökull (150km)**	Welcome Introduction to Icelandic geology and the Sólheimajökul glacier (between the volcanoes Katla and Eyjafjallajökull) I Spy, Ice breakers & Icelandic treats.
	11:00-12:00	**Sólheimajökull**	Hike to glacier terminus (15 mins) Using senses to explore: Observe (draw/photo), listen (record), smell & touch (write), taste the glacier **Coffee** (dependent on eruptions, blizzards or unforeseen circumstance)
	12:00-13:00	**Sólheimajökull to Hótel Katla (40 km)**	Passing by Dyrholaey Lighthouse and Vík
Stop 1 hr	**13:00-14:00**	**Hótel Katla**	**Lunch**
	14:00-14:15	**Back on the bus**	Stories of Risk: Living with eruptions, blizzards, melting ice-caps and floods

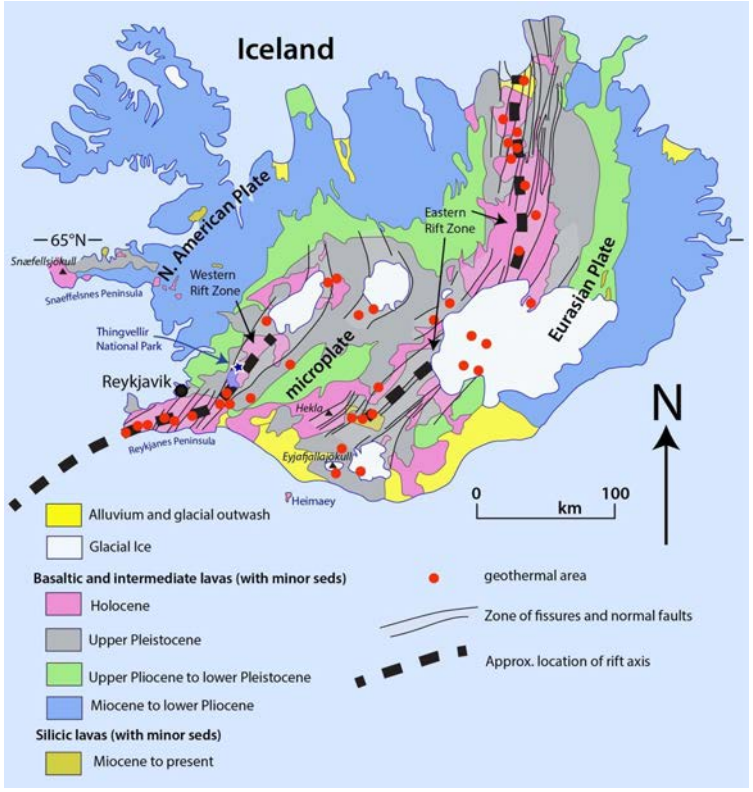
	14:15-14:20	**1996 jökulhlaup - Mega Flood**	Megaflood story while crossing the alluvial plain & course of the world's largest river floods of historical time Jökulhlaups
Stop 1 hr	14:20-16:15	**Vik to Jökulsárlón (190 km) -**	**Introduction to the main features of glacial lakes**
Stop 1.5 hr	16:15-17.45	**Jökulsárlón**	Exploration and photography at **Jökulsárlón** Glacier lagoon and Diamond Beach
		Jökulsárlón to Hali, Sudursveit (5km)	Introduction to the writer Þórbergur Þórðarson and the talking stones. The power of the written word
Stop 30 min	18:00-18:30	**Hali cultural museum**	**coffee/tea and cake**
	18:30-20:00	**18:30-20:00 Hali -Höfn (80 km)**	Histories of HÕFN -Introduction to Höfn - 'harbour'
	20:00	**Arrive at Hótel Höfn**	**Supper on arrival**

Day Four - Westbound
Fire, Ice, Flora and Fauna

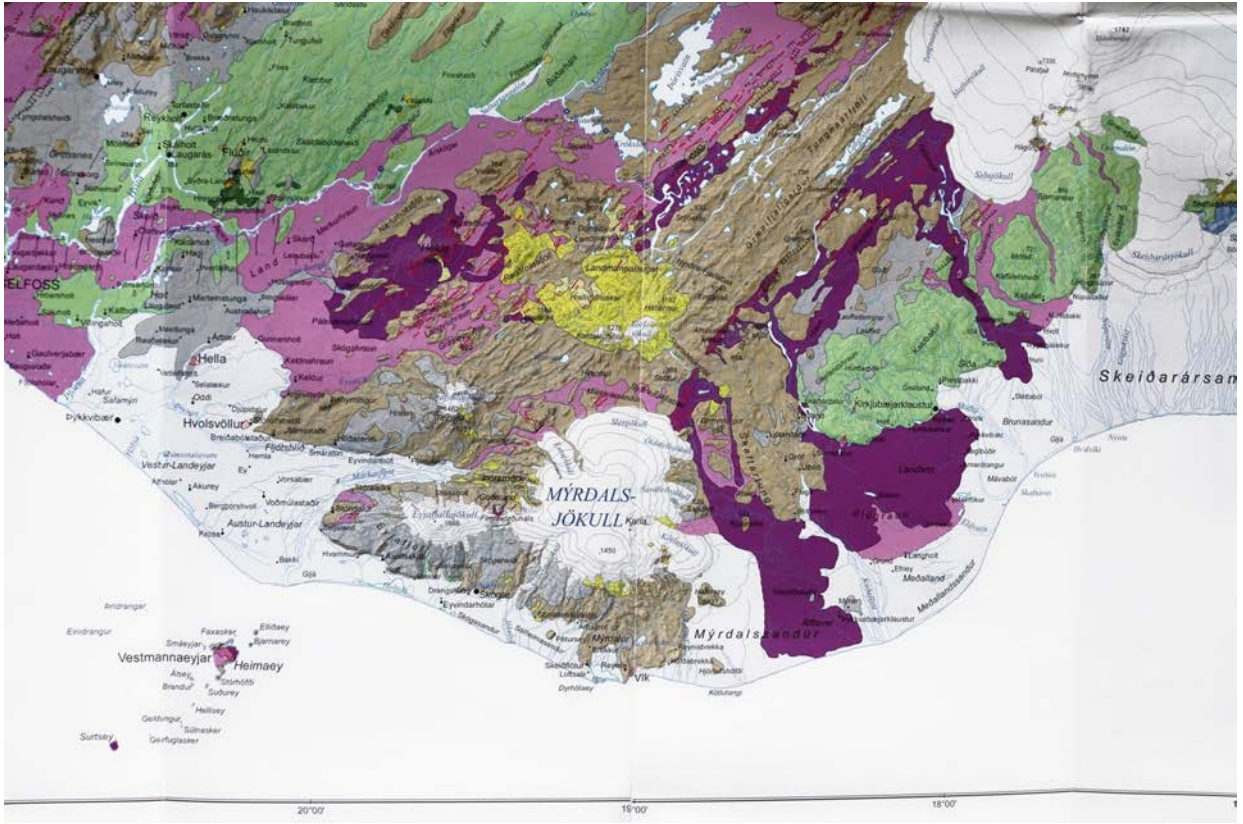
	Time	Programme	Activity
	8:00	Check out	
	8:30	Depart Höfn	
Stop 1.5 hr	10:00-11:30	Svartifoss waterfall in Vatnajökull National Park - Skaftafell	Hike to waterfall /columnar basalt
	11:30	The 'desert' of Skeiðarársandur - A new natural forest in making	Oddur explains a mystery
Stop 1 hr	13:00-14:00	Lunch in Kirkjubæjarklaustur	Lunch
	14:30	Crossing the world's two largest lava flows in	Brief stop (10 minutes) - using the senses - tactile and taste

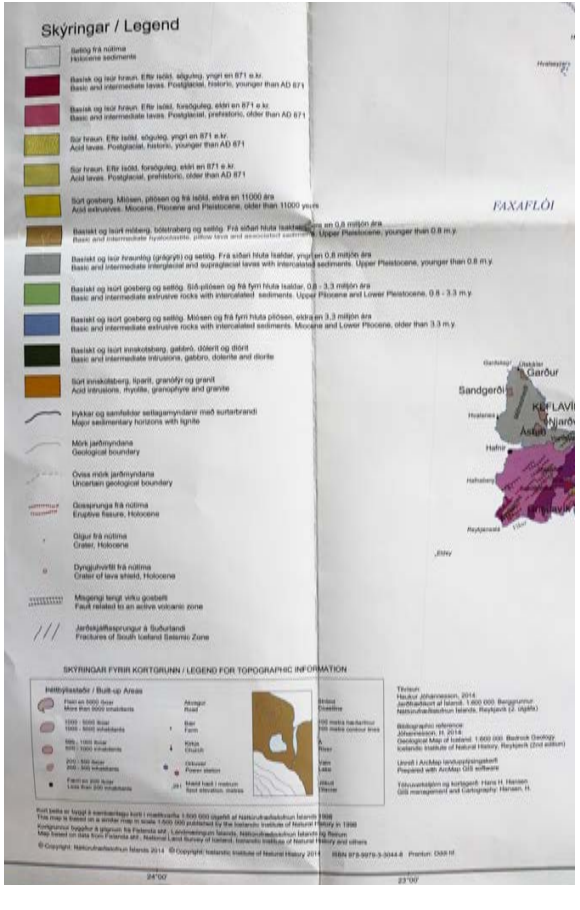
		historical times (930s CE and 1783-1784 CE)	
Stop 1 hr	15:30 -16:30	Reynisfjara columnar basalt, puffins and killer waves	Focus on wave action - unbroken streak of water south - north from Antarctica - message in a bottle?
	Caution: Extremely dangerous waves by Reynisfjara and Kirkjufjara black beaches Never turn your back to the sea or waves here or go onto the beach. The occasional 'surge' wave has so much power it comes creeping up and has the power to take your feet and the undertow sucks you away fast.		Do not climb the basalt to reach the puffins Caves with overhangs are unstable and unpredictable The beach is less safe than it looks - only the view from afar!
	19:00	Arrive in Reykjavík	End of Workshop

12. Geological maps - workshop bus route and Iceland



Magma Geology of Iceland


Hella
Hvolsvöllur
Vestur-Landeyjar
Austur-Landeyjar
MÝRDALS-
JÖKULL
Mýrdalssandur
Vestmannaeyjar
Heimaey
Surtsey
Skeiðarársan
Landbót
Meðalland
Vík
20°00'
19°00'
18°00'

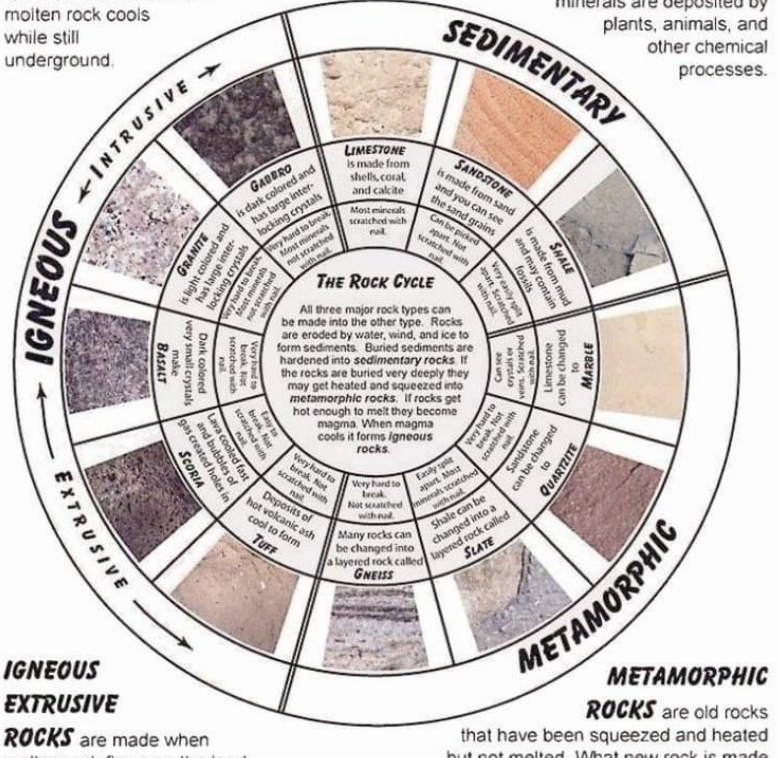


HOW TO IDENTIFY ROCKS

USGS

IGNEOUS INTRUSIVE ROCKS are made when molten rock cools while still underground.

SEDIMENTARY ROCKS are made when pieces of rocks settle from the water or when minerals are deposited by plants, animals, and other chemical processes.



IGNEOUS EXTRUSIVE ROCKS are made when molten rock flows on the land surface or is thrown into the air and then is cooled into rock.

METAMORPHIC ROCKS are old rocks that have been squeezed and heated but not melted. What new rock is made depends on what the original rock was and on the amount of heat and pressure.

13. How to pronounce Icelandic

Icelandic has many English sounds due the languages both coming from the same language tree. Unless mentioned, assume English pronunciation.

Á á - said as “ow” as in cow	R r - is always rolled
Đ đ - said as “th” in the	S s - always an “s”, never said as a z
E e - said as the short “ai” sound in air	U u - said as the French “eux” but shorter
É é - said as yeah, but shorter	Ú ú - said as the “ew” sound in yew
F f - at the start of words it is said as the English f. Between vowels as English. Before l or n as a b. Fnd is said as English m and fnt is said as hm	X x - said as a hard German “ch”
	Y y - see I
	Ý ý - see í
G g - At the beginning of words it is said as a hard English g. In between vowels and at the end of a	Þ þ - said as the “th” sound in thing
	Æ æ - said as “eye”

word a very soft throaty g resembling a toned down German “ch” at the back of the throat. It is not pronounced between accented vowels. It is said as an Icelandic j between a vowel and j. After a vowel and before a t or s it is a hard German “ch” I i - said as “I” in win Í í - said as “ee” in we J j - said as a “y” at the beginning of words. Elsewhere it is aspirated before the “y” sound O o - said as “o” in hot Ó ó - said as “oh”	Ö ö - said as “ ur ” as in murder Hv - as “kf” in thankful Ll - as “tl” Nn - as tn after accented vowel or diphthong. This also happens between rl, rn, sl and sn Pp, tt, kk are all aspirated (small puff of air) Au - is said as “öj” Ei and ey - said as the “a” sound in case

14. Sagas

Sagas are family stories based on historical events that mostly took place in Iceland in the ninth, tenth, and early eleventh centuries, during the so-called Saga Age. They tell tales of the early settlers, and the hardships they endured.	
Sagas in Iceland	https://adventures.is/information/icelandic-sagas/
Here is a patriotic poem from the Saga Age with a translation	
Sæl værak, ef sjá mættak *Búrfell og Bala,* *báða Lóndranga,* *Aðalþegnshóla og Öndvertnes,* *Heiðarkollu og Hreggnasa,* *Dritvik og Möl* *fyr dyrum fóstra.*	*Blissful I were, if I only could see* *Bald Mount and Broad Field* *Both rock pillars of Deep Lagoon* *Common Hills and Outermost Ness* *Heather Cap and Blizzard Peak* *Shit Creek and Pebbles' Causeway* *From my sire's threshold*
Here is a common song that Icelanders sing on bus trips. It is worded in the ancient tradition of alliteration which was common to most European nations a millennium ago but is now only practiced in Iceland:	
Krummi svaf í klettagjá, *kaldri vetrarnóttu á,*	*In a black ravine Raven slept* *a rugged winter night there wept.*

verður margt að meini. *Fyrr en dagur fagur ran* *freðið nefið dregur hann* *undan stórum steini.*	*Can it get much colder?* *Before the brightly break of day* *its beak is sharply drawn away* *from bottom of a boulder.*

Here is a folktale about the volcano Katla which has caused the huge jökulhlaups on Mýrdalssandur where we will cross on our way to Höfn just after lunch:

As far as the name Kötlugjá is concerned, the following tale is claimed to be true:

At Þykkvibær in Álftaver, after this farm had been converted into an abbey in the year 1168 or 1169, there was a housekeeper by the name of Katla; this witch had a pair of breeches that were of such nature that whoever wore them could run indefinitely without getting tired.

A shepherd named Barði was also around at the same time, who often had to endure abusive words and blows from Katla, when some of the ewes got away without being milked. Once when the abbot and Katla had gone off to a feast, Barði donned the breeches and found the milking sheep that had escaped.

Upon returning home, Katla noticed that Barði used the breeches, so she secretly drowned him in a large drinking vat, which in accordance with the common custom of those days was positioned by the main doorway, and from which all the people of the farm would drink. Barði lay in this vat until way into the winter, at

which time Katla was heard mumbling these words: "Senn bryddir á Barða." This means "Soon Barði will appear." (This is still a common expression in Iceland.)

Because she no longer could conceal her malice, she pulls her breeches on, runs to the northwest, up into the mountains and, as one believes, throws herself down into a gjá [fissure], or a cave, after which one conceived the superstition that Katla, through her magic, caused the subsequent volcanic eruptions from this location, which has been called Kötlugjá or the Katla fissure.

15. A History of Iceland

Basic history of Iceland	
870s	First Norse settlements on Iceland. Previous inhabitants were a small number of Irish monks.
930	An annual parliament - the Althing - established, to make laws and solve disputes.
986	Eiríkur the Red takes settlers from Iceland to colonize Greenland.

1000	Iceland adopts Christianity. A golden age of Icelandic culture begins, producing great works of medieval literature.
1000	Leifur Eiríksson explored the eastern coast of North America possibly as far south as Cape Cod and made settlement on Newfoundland. This was followed by attempts to establish a Norse settlement.
1262-4	Icelanders recognize the King of Norway as their monarch.
1380	Norway and Iceland enter a union with the Danish crown.
1402-04	Plague hits Iceland, killing half the population. The plague returns in 1494-5 with similar fatalities.
1550	Catholic bishop, Jón Arason, captured and beheaded in his northern diocese. This marks the final victory of the Lutheran Reformation in Iceland.
1602	Denmark assumes a monopoly on all Icelandic trade. This continues for around 200 years.

1700s	A period of decline in Iceland, with disease, famine and a volcanic eruption in 1783 reducing the impoverished population from 50,000 to 35,000.
1814	Norway enters union with Sweden; Iceland remains under Danish rule.
1845	The Althing meets again in Reykjavik.
1848	Denmark's monarch renounces his absolute power; Denmark prepares to become a representative democracy. This raises questions about Iceland's status.
1874	Iceland given limited autonomy; the Althing has power over internal affairs.
1904	Iceland attains home rule; rule by parliamentary majority introduced. The country experiences rapid technological and economic progress. University of Iceland established in 1911.
1918	Iceland achieves full self-government under the Danish crown. Denmark retains control over foreign affairs only. The treaty is valid until 1943.

1940	German forces occupy Denmark. British forces occupy Iceland.
1941	The United States takes over the defence of Iceland and stations tens of thousands of troops there.
1943	The Treaty of Union with Denmark runs out, with Denmark still occupied by Nazi Germany.
1944	Icelanders vote in a referendum overwhelmingly to cut all ties with Denmark and become a republic. The Republic of Iceland is proclaimed on June 17th.
1949	Iceland becomes a member of Nato.
1958	First "Cod War" as Iceland extends its fishing limit to 19 kilometres.
1970	Iceland joins European Free Trade Association (EFTA).
1972	Iceland extends the fishing limit to 80 kilometers. Renewed confrontation with Britain.
1973	A volcanic eruption occurred on the largest of the Westman Islands and destroys 400 houses, however, without human

	casualties.
1975-6	Third "Cod War" as Iceland extends its fishing limit to 320 kilometers.
1980	Vigdís Finnbogadóttir becomes first woman president of Iceland and the first elected woman national president in the world.
1980s	Iceland suffers from high inflation, averaging 38% annually.
1985	Iceland declares itself a nuclear-free zone.
1992	Iceland leaves International Whaling Commission (IWC) in protest at what it sees as the IWC's anti-whaling stance.

16. Vacation MAD LIBS

An adventure is when you take a trip to some _____ place with your
adjective
_____ _____. Usually you go to _____that is near a/an
adjective *noun* *location*
_____ or up on a/an _____. An exciting adventure is one
noun *noun*
where you can ride _____ or play _____ or go sliding on
plural noun *game*
_____ . I like to spend my time _____ or trying to
plural noun *verb ending in -ing*
_____. When scientists go on a vacation, they spend their time
verb
eating three _____ a day, then _____ go to climb the
plural noun *type of scientist (plural)*

_____ for fun, and _____ sit around the _____.

tall noun *type of scientist (plural)* *compact object*

Then they all grab a _____ and go _____. Last summer,

hand-held noun *verb ending in -ing*

my favorite _____ fell in a/an _____ and got poison

academic job title *large noun*

_____ all over his/her_____. My _____ is going

plant *body part* *relative*

to go to (the) _____, and I will practice _____.

novel location *a new skill ending in -ing*

Educators need adventures more than _____ because educators

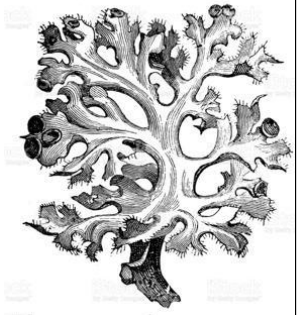
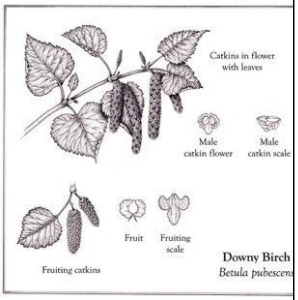
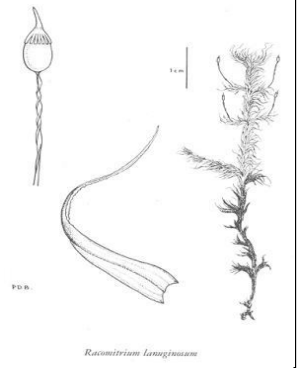
silly job title

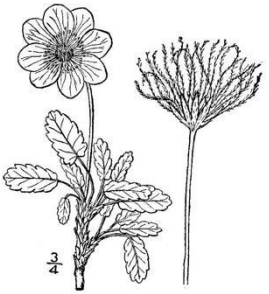
are always very _____ and because they have to work _____

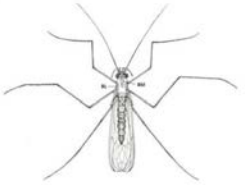
adjective *number*

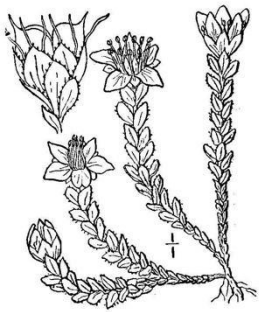
hours every day all year making enough _____to _____ and *plural noun* *important verb* pay for all the _____. *scientific tool (plural)*

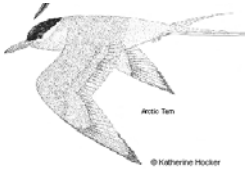
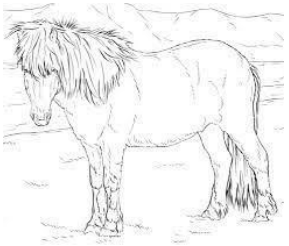
18. Field Guide – what can you find?

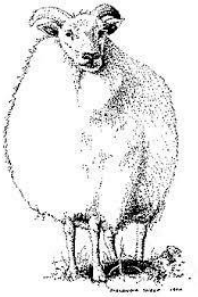
	Cetraria icelandica - also known as true Iceland lichen or Iceland moss, is an Iceland lichen whose erect or upright, leaflike habit gives it the appearance of a moss, where its name likely comes from.		Downy Birch – well developed trees in sheltered areas, characteristic birch scrub that is the only tree species in the wild that flourishes. Rowan needs birch stand to grow. Currently covers only 1% of the land. At the time of Norse settlement it is estimated that 30% of the land was covered with birch stands.
	Racomitrium lanuginosum Is the moss covering recent lava fields It grows as large mats on exposed rock and in boulder scree, particularly on acidic rocks.		Racomitrium fasciculare Is the moss that grows on the stray stones that lie on top of the glacial ice (these rocks or pebbles are called glacier mice).

	Rowan Tree-The height this tree can reach ranges from only two meter at maximum where conditions are poor to over 10 meters where conditions are favourable. It usually grows as single trees in birch stands, usually taller than the birches. In spring it produces umbels of white flowers from which light-red berries develop. These berries are a treat for birds. The Icelandic name of this species is Reyniviður.		Mountain Avens (*Dryas octopetala*) 'Holtasóley', was voted the National Flower of Iceland by the public in 2004. It is a white Arctic-alpine flowering plant and it flourishes in every region of Iceland. This pretty wildflower is the favourite food of the rock ptarmigan, or 'Rjúpa' leading it to be nicknamed 'Rjúpnalauf' which directly translates to 'rock ptarmigan's leaf'.

	European Golden Plover - Fairly common but often local, breeding on moorland and tundra, wintering in grasslands, fields, and less often coastal mudflats. All plumages of Golden are spangled and spotted golden above; breeding plumage has variable black on face and belly. Nonbreeding plumage is buffy golden overall with white belly. In flight shows bright white underwings, narrow whitish wing stripe.		Lake Midge - The lake midge doesn't bite or sting. They do swarm in your face on a hot day, especially one near a body of standing water. But they are crucial to the ecosystem. These are often confused with the biting black fly which also swarms.

	Purple mountain saxifrage (Saxifraga oppositifolia) is a very common flowering high arctic and some high alpine areas plant, it is an evergreen perennial that forms low mats.		Bombus jonellus (the Icelandic bumble bee or small heath bumblebee) is a bee species found across Europe and northern Asia, also found in North America. The nest, which at most can contain 50 to 120 workers, can be situated both above and under ground. Females (queens and workers) have a predominantly black abdomen with a yellow collar, the first and sometimes second terga yellow, and a white tail. The face is black, occasionally with a patch of yellow fur on the top. Males are similar, but with more yellow;

	Arctic terns are the champion migrators of the bird world, making a 25,000-mile round-trip every year. Because it spends summer in the north and winter in the Antarctic, this bird experiences more daylight than any other creature. Arctic terns are aggressive, and will attack and mob human intruders, crying loudly and diving continually at the invader's head. Terns are capable of hovering in the air.		Iceland horses come from the first Viking horses that arrived on the island with settlers between 860 and 935 CE. The Icelandic horse is famous for its compact size, strong build, good temperament and fifth gait or tölt making for a smooth riding gait.

	Domestic dog-The Icelandic Sheepdog is a breed of dog of spitz type originating from the dogs brought to Iceland by the Vikings. It is of similar type to the Norwegian Buhund, the Shetland Sheepdog, and the Welsh Corgi. They are commonly used to herd sheep in the Icelandic countryside		The Icelandic is the Icelandic breed of domestic sheep. It belongs to the Northern European Short-tailed group of sheep, and is larger than most breeds in that group. It is thought that it was introduced to Iceland by Vikings in the late ninth or early tenth century.
	Columnar Basalt is formed when the iron and magnesium-rich basalt lava cools and contracts very quickly once exposed to the surface air and hardens as it solidifies. Iceland basalt columns are the result of this rapid cooling process that changes the chemical makeup and appearance of the lava.		Dulse (Palmaria palmata) or Icelandic red sea kelp In times of famines, bad harvests, and severe winters, the superfood from the ocean was able to prevent malnutrition and balance out the shortage of fresh fruits and vegetables. In Iceland, the health benefits of seaweed were recognized as early as the middle ages. The consumption of dulse appeared in the Icelandic Sagas .

More information on living organisms etc. in Iceland can be found at the following links:

Plants
Rodents
Birds or on this site
Other Common Wildlife
Intertidal & Marine Life
Lichen
Rocks