

Coastal Process

Student Workbook

Student
Name: _____

Class: _____



Class 1 Task 2: Image Discussion Points

Write down any comments made during your discussion time.



Class 1 Task 2

Keywords

Task: Match the correct definition to its keyword. One is done for you as an example

A	Fetch
B	Swash
C	Destructive waves
D	Hydraulic Action
E	Longshore Drift
F	Wave Refraction
G	Storm Beach
H	Beach

1	The movement of material along the coast
2	The distance a wave has travelled before it reaches land.
3	High frequency waves with a stronger backwash than Swash
4	The bending of wave crests as they approach headlands and islands
5	Steep beaches composed of rounded cobbles and shingle and occasionally sand
6	Term given to when waves break, and water rushes up the beach
7	The crushing force of tonnes of water in each wave wearing away the land
8	A narrow strip of land separating a body of water from inland areas

A	
B	6
C	
D	
E	
F	
G	
H	

Answer Key Task 1

A	2
B	6
C	3
D	7
E	1
F	4
G	5
H	8



Class 1 Task 2

Map 1: Skerries, Co. Dublin

Examine the OS Map of the Skerries area. Name and identify any coastal landforms present. Locate each feature using 6-figure grid references. Tick the correct process(s) involved in each landform's formation.

Feature Named	Location of Feature	Landform of Erosion	Landform of Deposition	Landform of Transportation



Map Skills – Sketching an area to half scale

Using OS map of Skerries, draw a sketch map to half scale and identify the following features:

1. Coastline
2. Bay
3. Headland
4. Named island
5. Tombolo
6. Railway line and station
7. Built up area
8. Recreational activity
9. Named antiquity

Remember to include a suitable title, frame, scale, north arrow and legend



Class 1 Task 3 – Sketch Map Skills

Class 2 – Coastal Processes – Wind Conditions

Task 1 –Click on the link to windy app and find the following information for.....

Date:	Templetown Beach, Co. Louth	Lahinch, Co Clare
Wind Speed @ 16.00 hrs		
Wind Direction		
Temperature		
Wave Hight		
Classification of Wind Speed on Beaufort Scale		

Comments on data collected:

Class 3 – How Beaches Form

Task 1 – Identify the following features that may be found on a beach



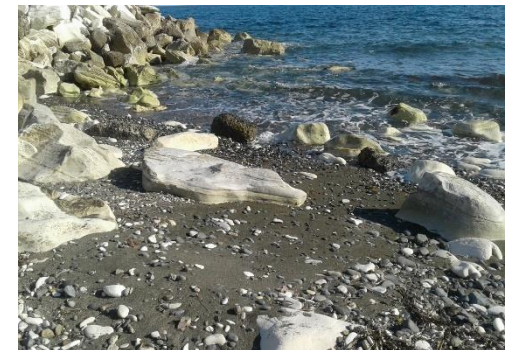
		Picture Letter			Picture Letter
1	Runnels		4	Ridges	
2	Cusps		5	Berm	
3	Shingle		6	Ripple Marks	9

Class 3 Task 3 – Beach Formation Diagram (Optional – at Teacher's request)

Class 4 – Geology at Templetown Beach

Task 1

Question	Answer
Main Rock Types based on GSI Map – Cooley Peninsula	
Bedrock at Templetown Beach – Interactive Scoilnet Map Bedrock Layer	
Additional Rock Types Identified using Interactive Scoilnet Map	



Bedrock Types – Cooley Peninsula, Co Louth

Task 2



Legend

Rock Identification – Images on Slide 41

Rock Type	Image Letter
Limestone	
Sandstone	
Shale	
Granite	
Grabbo	

Suggest an explanation for different rock types being present on Templetown Beach

Class 5 – Glaciation Video Comprehension Questions

Question	Options
1. What are glaciers primarily made of?	a) Sand b) Rocks c) Ice d) Soil
2. Which type of glaciers form high up in mountains and flow downhill?	a) Coastal glaciers b) Inland glaciers c) Alpine glaciers d) Polar glaciers
3. What is the process called when chunks of ice break off from glaciers and float into the sea?	a) Melting b) Freezing c) Calving d) Solidifying
4. What do glaciers carve out as they move downhill?	a) Steep-cliffs b) V-shaped valleys c) U-shaped valleys d) Plateaus
5. What feature is formed by unsorted and unlaid sediment left behind by melting glaciers?	a) Moraine b) Striation c) Drumlin d) Till
6. What reveals the direction in which a glacier was moving before it melted?	a) Striations b) Moraines c) Erratics d) Drumlins

7. What are randomly scattered large boulders moved by glaciers called?	a) Till b) Striations c) Erratics d) Moraines
8. Which term refers to the elongated hill of unsorted sediment formed by glaciers?	a) Till b) Striation c) Drumlin d) Erratic
9. What causes the formation of kettle lakes?	a) Glacial movement b) Volcanic activity c) Earthquakes d) Sandstorms
10. What kind of sediment deposition results from runoff caused by melting glaciers?	a) Till b) Striation c) Outwash d) Moraine
11. Which region in New York State shows evidence of glaciation from the last Ice Age?	a) Southern New York b) Western New York c) Eastern New York d) Upstate New York
12. What environmental impact does the melting of glaciers have?	a) Decreased sea levels b) Increased atmospheric humidity

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	c) Rising sea levels due to increased freshwater in oceans
13. Which of the following features were formed by multiple periods of glaciation?	a) V-shaped valleys b) Moraines c) U-shaped valleys d) Plateaus
14. What is the primary factor contributing to the disappearance of large-scale glaciation?	a) Decreased ocean temperatures b) Cooling atmosphere c) Warming atmosphere and oceans due to climate change d) Increased snowfall
15. What marks the farthest point a glacier traveled before receding or melting away?	a) Striation b) Erratic c) Drumlin d) Terminal moraine

[illegible]

Class 5 – Comparing Images- Accounting for Change

IMAGE 1



Image 1

IMAGE 2

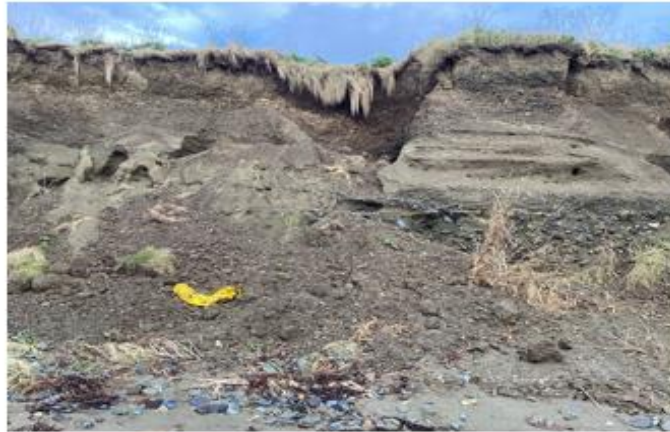


Image 2

Study the two images of the cliff face at Templetown beach. Comment on any similarities or differences you can identify. Use the vocabulary gained from Task 2 on page 16 to help discuss the landforms

Class 6 Beach Slope – Practice Calculation

Distance on the Ground	Angle of the Slope in Degrees Foresight Angle	Angle of the Slope in Degrees Backsight Angle
0 – 2 meters		
2 – 4 meters		
4 – 6 meters		
6 – 8 meters		
8 – 10 meters		
10 – 12 meters		
12 – 14 meters		
14 – 16 meters		
16 – 18 meters		
18 – 20 meters		

Result- Angle of Beach in degrees: _____

Geography in Action – Fieldwork Booklet

To investigate the impact of Geomorphological Processes of
Transportation and Deposition at Templetown Beach Co. Louth

Tasks

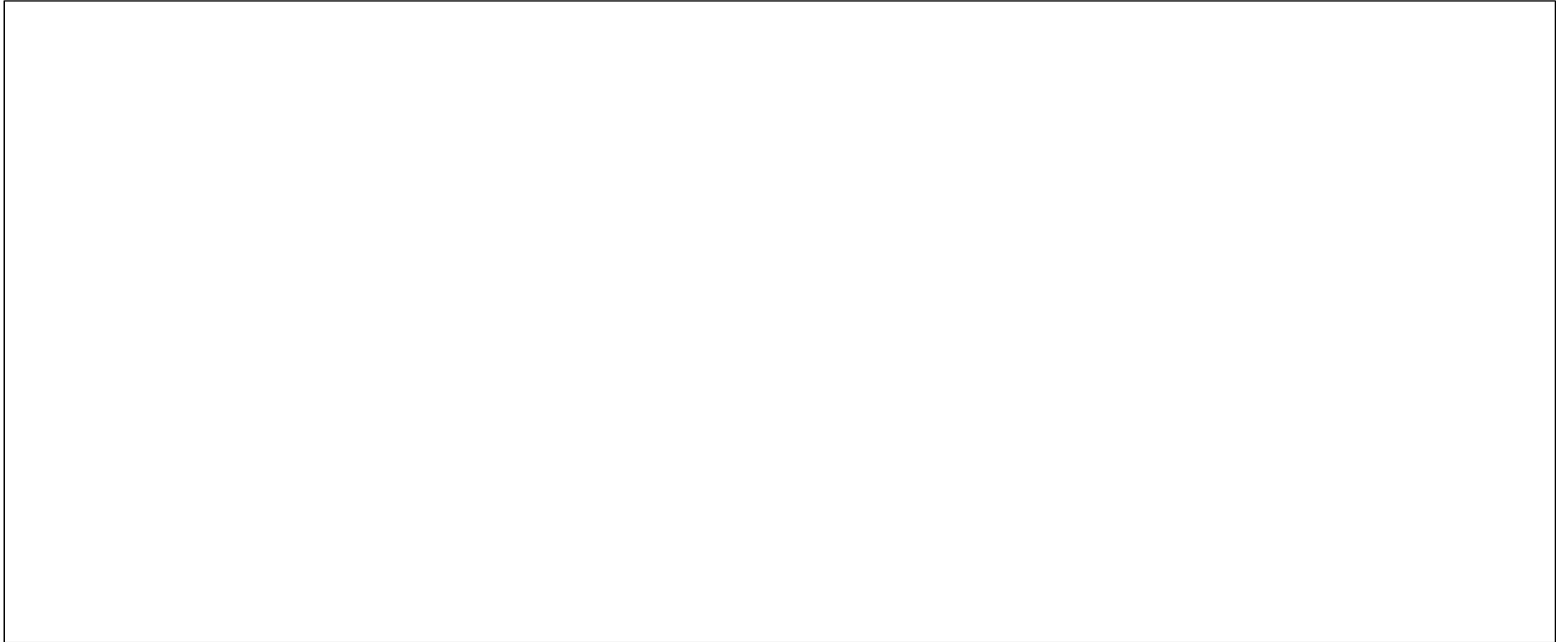
- Beach Sketch
- Cliff Sketch
- Cliff Height Measurement – Vertical Cliff Height Method
- Beach Fabric Analysis – Size and Shape
- Wave Frequency
- Wind Speed
- Beach Slope



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Task 1: Beach Sketch

Use a view finder to sketch your area of study on Templetown Beach.



Task 2: Cliff Face Sketch

Use a view finder to sketch a suitable area of the cliff. Ensure you have a full view of the top and to the bottom.



Task 3: Vertical Cliff Height Measurement

Materials Required

- Measuring tape
- Clinometer
- Tan of Angle Method
- Calculator
- Recording sheet

Height of Person (m)	
A – Distance from base of cliff to person measuring	
Tan B (Angle in degrees)	
Calculation:	
Height of Cliff: _____	

$H_c = (A \times \tan B) + H_p$: Height of Cliff = (Distance in meters from base of cliff x Angle) + Height of person holding clinometer
*Use Tan tables or calculator to determine the tan

Task 4: Beach Fabric Analysis

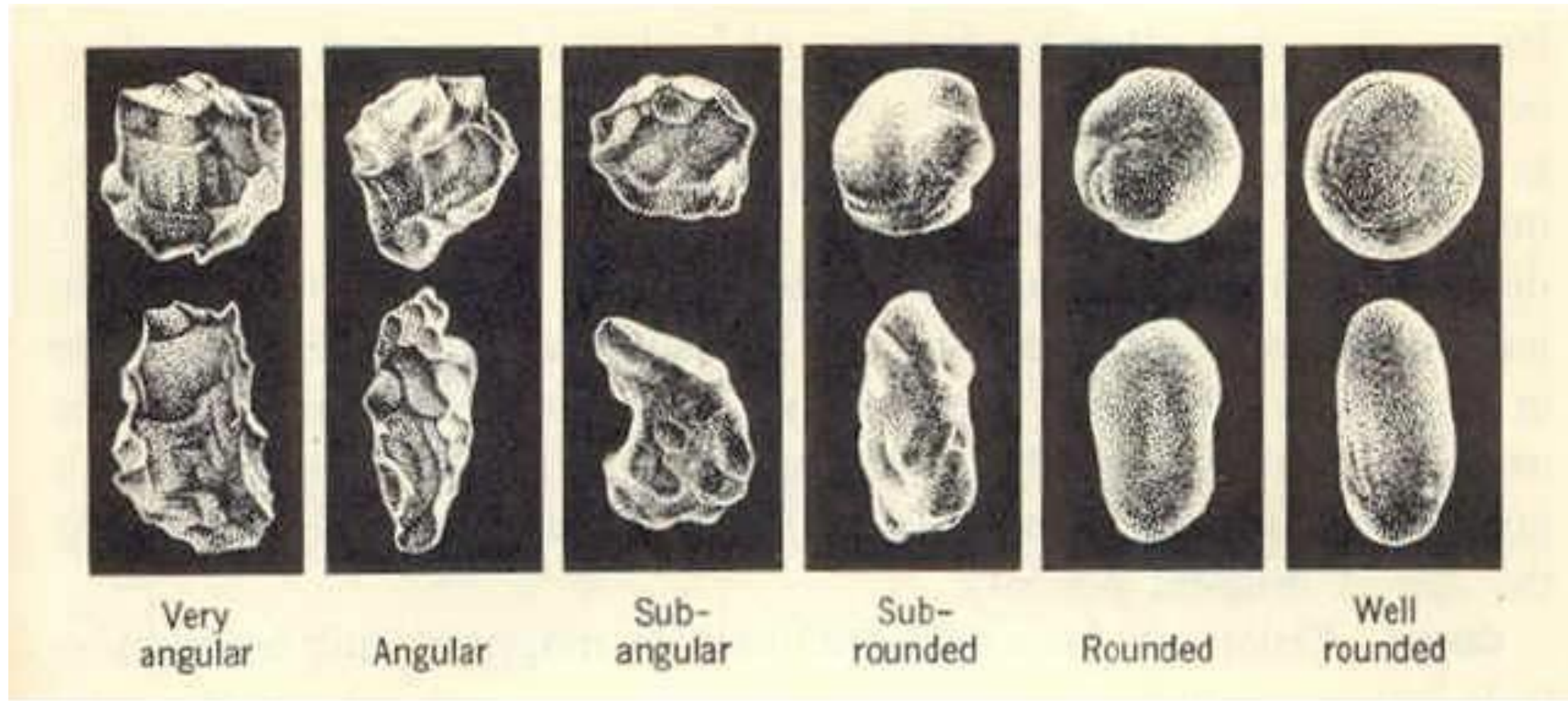
- S= Sand 4mm or less
- P= Pebble 4mm – 0.9cm
- G= Gravel 1cm-6.45cm
- C = Cobble 6.5 cm -25cm
- B = Boulder 25 cm or more

- Equipment
- Calipers
 - Quadrat
 - Recording Sheet

Beach Fabric Recording Sheet											
Quadrat 1	Size (cm)	Size Category	Power's RC	Quadrat 2	Size (cm)	Size Category	Power's RC	Quadrat 3	Size (cm)	Size Category	Power's RC
1				1				1			
2				2				2			
3				3				3			
4				4				4			
5				5				5			
6				6				6			
7				7				7			
8				8				8			
9				9				9			
10				10				10			25

Power's Roundness Chart Classification

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VA

A

SA

SR

R

WR

Task 5: Wave Frequency

Wave Count	No. of Waves per minute
Count 1	
Count 2	
Count 3	
Count 4	
Count 5	
$C1+C2+C3+C4+C5 / 5 = \text{No of waves per minute}$	

Destructive Waves	10-15 waves per minute	
Constructive Waves	9 or less waves per minute	

Equipment

- Anemometer
- Clicker
- Stopwatch

Wind Speed Count	Wind speed in km/hr
1	
2	
3	
4	
5	
$C1+C2+C3+C4+C5 / 5 = \text{Average Wind Speed}$	

Beaufort Wind Speed Table

How to read the Beaufort scale chart

Beaufort number	Wind type	Wind speed	Wave height	Land conditions
0	Calm	0 m/s	0 m	Calm. Smoke rises vertically
1	Light air	0–2 m/s	0 m	Wind motion visible in smoke
2	Light breeze	2–3 m/s	1 m	Wind felt on exposed skin. Leaves rustle
3	Gentle breeze	3–5 m/s	1 m	Leaves and smaller twigs in constant motion
4	Moderate breeze	5–8 m/s	1–2 m	Dust and loose paper is raised. Small branches move
5	Fresh breeze	8–11 m/s	2–3 m	Smaller trees sway
6	Strong breeze	11–14 m/s	3–4 m	Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult
7	Near gale	14–17 m/s	4–5 m	Whole trees in motion. Some difficulty when walking into the wind
8	Gale, fresh gale	17–21 m/s	5–7 m	Twigs broken from trees. Cars veer on road
9	Severe gale	21–24 m/s	7–10 m	Light structure damage
10	Storm whole gale	24–28 m/s	9–12 m	Trees uprooted. Considerable structural damage
11	Violent storm	28–33 m/s	12–16 m	Widespread structural damage
12	Hurricane force	≥ 33 m/s	≥ 14 m	Considerable and widespread structural damage

Color chart — Windy.app

All numbers have been rounded up for convenience.



Task 6: Beach Slope

Equipment

- Range Poles
- Clinometer
- Measuring Table/
Trundle Wheel
- Recording sheet
- Sports cones/caps

Distance on the Ground	Angle of the Slope in Degrees Foresight Angle	Angle of the Slope in Degrees Backsight Angle
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