Please check the examination details below before entering your candidate information

Candidate surname	Other names

Pearson Edexcel Level 3 GCE

Centre Number | Candidate Number

Time 1 hour 30 minutes

Paper reference **8GE0/01**

Geography

Advanced Subsidiary
PAPER 1: Dynamic Landscapes

You must have:
Resource Booklet (enclosed)
calculator, ruler

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer Question 1 in Section A **and EITHER** Section B **OR** Section C.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- Calculators may be used.
- Any **calculations** must show **all** stages of **working out** and a **clear answer**.

Information

- The total mark for this paper is 72.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.
- Good luck with your examination.

Turn over ▶

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Answer Section A and EITHER Section B OR Section C.

SECTION A

Tectonic Processes and Hazards

Answer ALL questions. Write your answers in the spaces provided.

You must use the Resource Booklet provided.

1 (a) State **one** characteristic of tectonic hazard profiles.

(1)

.....

(b) Study Figure 1a in the Resource Booklet.

(i) Calculate the area of Box A in Figure 1a. The length has been calculated for you.

Show your working.

Give your answer to the nearest whole number.

(2)

..... km^2

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(ii) Study Figure 1b. Earthquakes occurred in this region in 2017.

Suggest **one** factor that could increase hazard risk in Tsangpo Gorge, shown in Figure 1b.

(3)

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(c) Explain **two** tectonic processes that occur at a convergent plate margin.

(4)

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(d) Using **one** named example, explain the economic and human impacts of a tectonic mega-disaster.

(6)

Named example

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(e) Study Figure 1c in the Resource Booklet.

Assess the extent to which wealth (GDP per capita) affects the impacts of these earthquakes.

(12)

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(Total for Question 1 = 28 marks)

TOTAL FOR SECTION A = 28 MARKS

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SECTION B

Glaciated Landscapes and Change

Do not answer Section B (Glaciated Landscapes and Change) if you have answered SECTION C (Coastal Landscapes and Change).

Indicate which question you are answering by marking a cross in the box ☒. If you change your mind, put a line through the box ☒ and then indicate your new question with a cross ☒.

If you answer Section B put a cross in the box ☐ .

You must use the Resource Booklet provided.

2 (a) State **one** process of glacial movement.

(1)

.....

(b) Study Figure 2 in the Resource Booklet.

(i) Describe the direction of glacial flows.

(2)

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(ii) Suggest **one** reason for the pattern of glacial moraine in Figure 2.

(3)

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(c) Explain the formation of **two** periglacial landforms.

(4)

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(d) Using **one** named example, explain why management approaches in glaciated landscapes can lead to conflict between stakeholders.

(6)

Named example

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(e) Assess the extent to which the processes of deposition are more important than the processes of erosion in creating distinctive glacial landscapes.

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(Total for Question 2 = 28 marks)

Use your knowledge and understanding from across the course of study, along with the information in Figure 3, to answer this question.

3 Study Figures 3a, 3b, 3c and 3d in the Resource Booklet.

Evaluate the view that people are the main threat to Antarctica's glacial landscape.

(16)

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(Total for Question 3 = 16 marks)

TOTAL FOR SECTION B = 44 MARKS

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SECTION C

Coastal Landscapes and Change

Do not answer Section C (Coastal Landscapes and Change) if you have answered SECTION B (Glaciated Landscapes and Change)

If you answer Section C put a cross in the box ☒ .

You must use the Resource Booklet provided.

4 (a) Name **one** part of the coastal littoral zone.

(1)

.....

(b) Study Figure 4 in the Resource Booklet.

(i) Describe the direction of sediment transport in Figure 4.

(2)

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(ii) Suggest **one** reason for the change in sediment size along transect AB shown in Figure 4.

(3)

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(c) Explain **two** characteristics of submergent coastlines.

(4)

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(d) With reference to **one** named coastline, explain why policy decisions can lead to conflict between different players.

(6)

Named example

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(e) Assess the extent to which transport and deposition processes are more important than erosional processes in creating distinctive coastal landscapes.

(12)

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(Total for Question 4 = 28 marks)

Use your knowledge and understanding from across the course of study, along with the information in Figure 5, to answer this question.

5 Study Figures 5a, 5b, 5c and 5d in the Resource Booklet.

Evaluate the view that people are the main threat to Iceland's coastal landscape.

(16)

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(Total for Question 5 = 16 marks)

TOTAL FOR SECTION C = 44 MARKS

TOTAL FOR PAPER = 72 MARKS

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Pearson Edexcel Level 3 GCE

Time 1 hour 30 minutes

Paper reference **8GE0/01**

Geography

Advanced Subsidiary
PAPER 1: Dynamic Landscapes

Resource Booklet

Do not return this Booklet with the question paper.

Turn over

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SECTION A

The following resources relate to Question 1.

Figure 1a

A satellite image of the Tsangpo River in the Himalayas

Figure 1b

A photo of a gorge on the Tsangpo River, further upstream

Event	Earthquake moment magnitude (M_w)	Secondary events	Wealth (GDP* per capita US$)	Number of people affected
Hokkaido, Japan	6.6	Typhoon + landslides	38,428	41 dead 691 injured
Hualien, Taiwan	6.4		25,534	17 dead 285 injured
Lombok, Indonesia	6.9	Landslides + fear of tsunamis	3,846	563 dead 1,000+ injured
Sulawesi, Indonesia	7.5	7 m tsunami + landslides	3,846	4,340 dead 10,679 injured, 277,345 evacuated
Haiti	5.9		765	18 dead 548 injured

*Gross Domestic Product

Figure 1c

Data about selected earthquake events in 2018

SECTION B

The following resources relate to Questions 2–3.

Figure 2

Aerial photo of Mt Barnard Glacier, in Alaska

The following resources relate to Question 3.

- The West Antarctic Ice Sheet covers part of Antarctica. Its sheer weight causes ice to flow over bedrock, aided by streams underneath the glaciers.
- Scientists have discovered 91 volcanoes underneath the ice. This makes Antarctica one of the largest volcanic regions in the world. Bedrock heat from tectonic activity is causing some glaciers to flow faster.
- Climate scientists are worried that anthropogenic climate change is causing melting glaciers and ice mass loss – roughly 250 gigatons of ice have been lost per year since 2009. This might cause global sea-levels to rise.
- Despite the Antarctic Treaty, humans have an increasing presence. Research stations, airport runways, tourist camps and waste dumps could all threaten wildlife, such as Adélie penguins.

Figure 3a

Information about the West Antarctic Ice Sheet, Antarctica

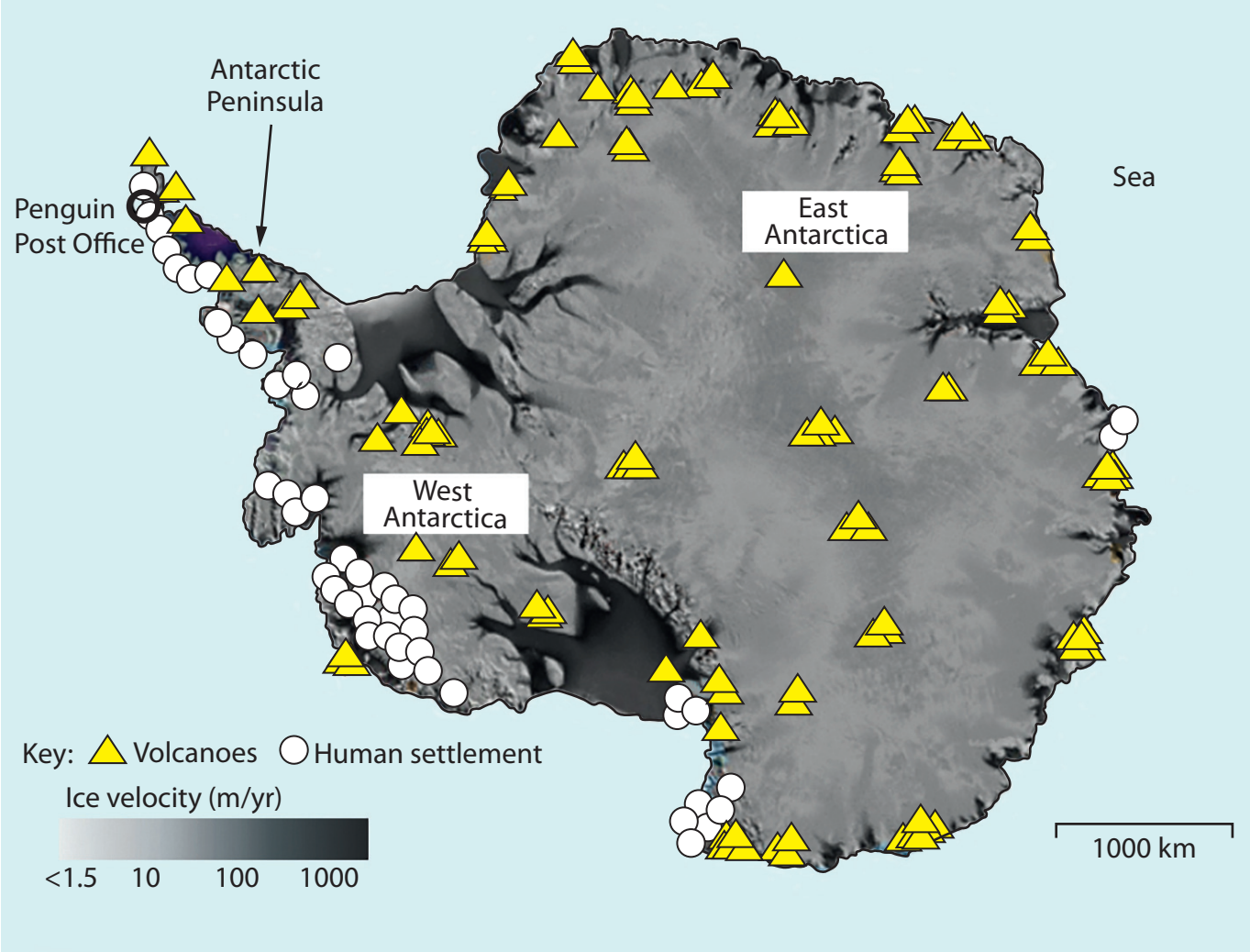


Figure 3b

Map of Antarctica showing ice flow velocity, together with location of volcanoes and human settlement

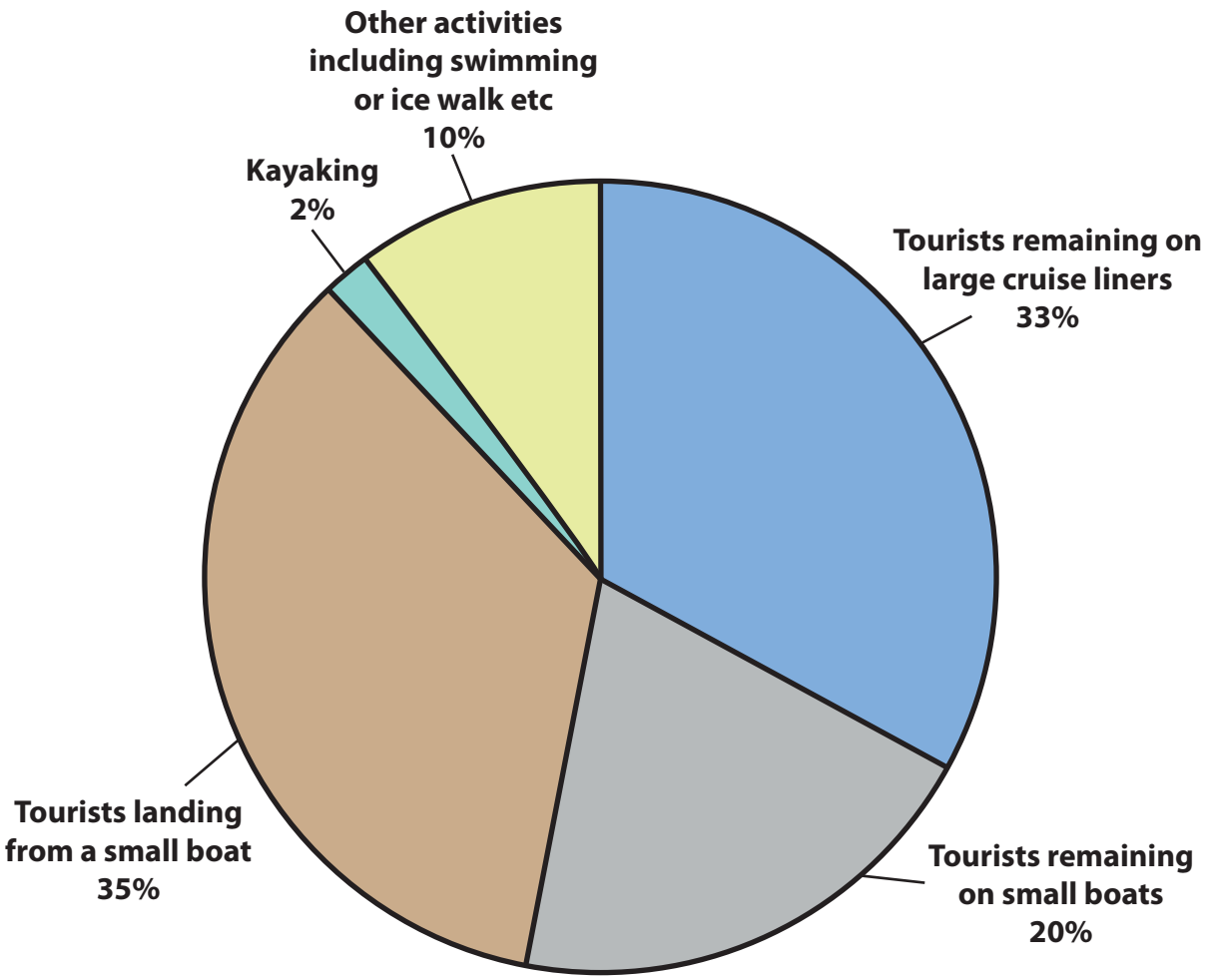


Figure 3c

Tourist activity in Antarctica during 2016–17

Penguin Post Office – a frequent stop for tourists. Low-lying land on the Antarctic Peninsula is vulnerable to sea-level rise.

Glacial melt from the northern Peninsula is contributing 0.16 mm of sea-level rise per year.

The International Association of Antarctic Tour Operators requires cruise ships to compete for limited rights to let tourists walk on Antarctica.

Full decontamination is needed before tourists come into contact with Adélie penguins.

Some studies show glacier mass balance is possibly increasing because of more snowfall.

Icebreaker ships help scientists leave datalogging equipment across Antarctica to track ice flow as climate changes.

Figure 3d

Three scenes from the West Antarctic Ice Sheet

SECTION C

The following resources relate to Questions 4–5.

Figure 4

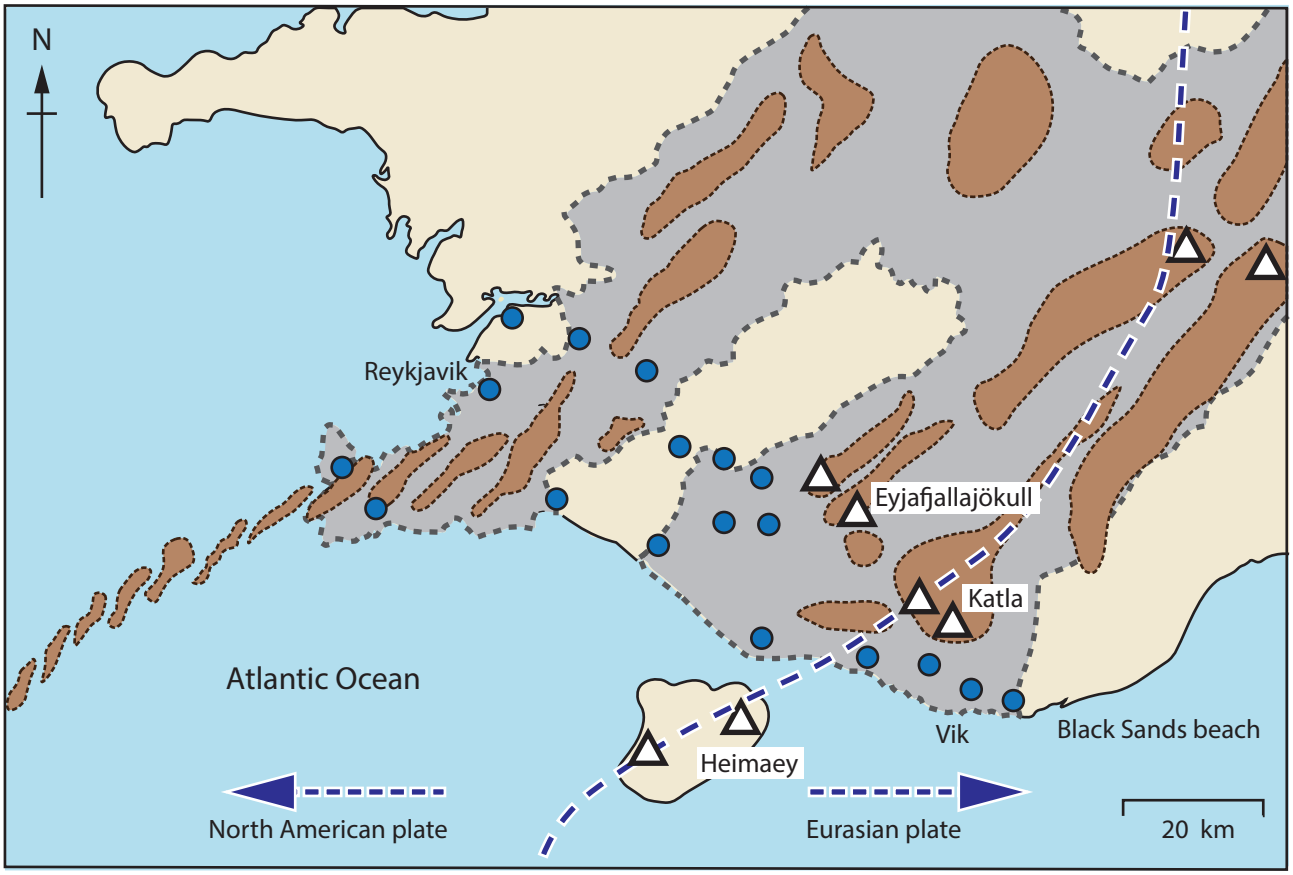
The beach either side of a concrete groyne at Felixstowe, Suffolk

The following resources relate to Question 5.

- Vik is a small village, part of the Iceland's Golden Circle tour of the South Coast. This 'mystical and beautiful wilderness landscape' often features in films, including *Star Wars*. Film crews and tourists have been criticised for illegal 'off road' driving which causes irreversible erosion to the landscape.
- Iceland is on a divergent plate boundary, between the Eurasian and North American plates. Iceland typically experiences 1 major volcanic event every 5 years. The eruption of Eyjafjallajökull in 2010 has inspired a dramatic rise in 'danger tourism'. Scientists worry tourists are not as prepared for an eruption as Vik's 543 residents are.
- Katla is the most active volcano, with small eruptions under the ice since 1999. In 2017 earthquakes caused glaciers to burst. Water flooded the Mulakvisl River near Vik, causing local sea-level to rise.
- Anthropogenic climate change is causing some glaciers to melt, resulting in isostatic uplift of 35 mm/yr, although sea-levels are rising by approximately 1.8 mm/yr.

Figure 5a

Information about the Black Sands beach at Vik, Iceland



Key:

- Tourist hotspot along the Golden Circle tour
- Volcanoes
- Volcanically active areas
- Divergent plate boundary
  Movement is 2.5 cm/yr

Figure 5b

Map of the South Coast of Iceland

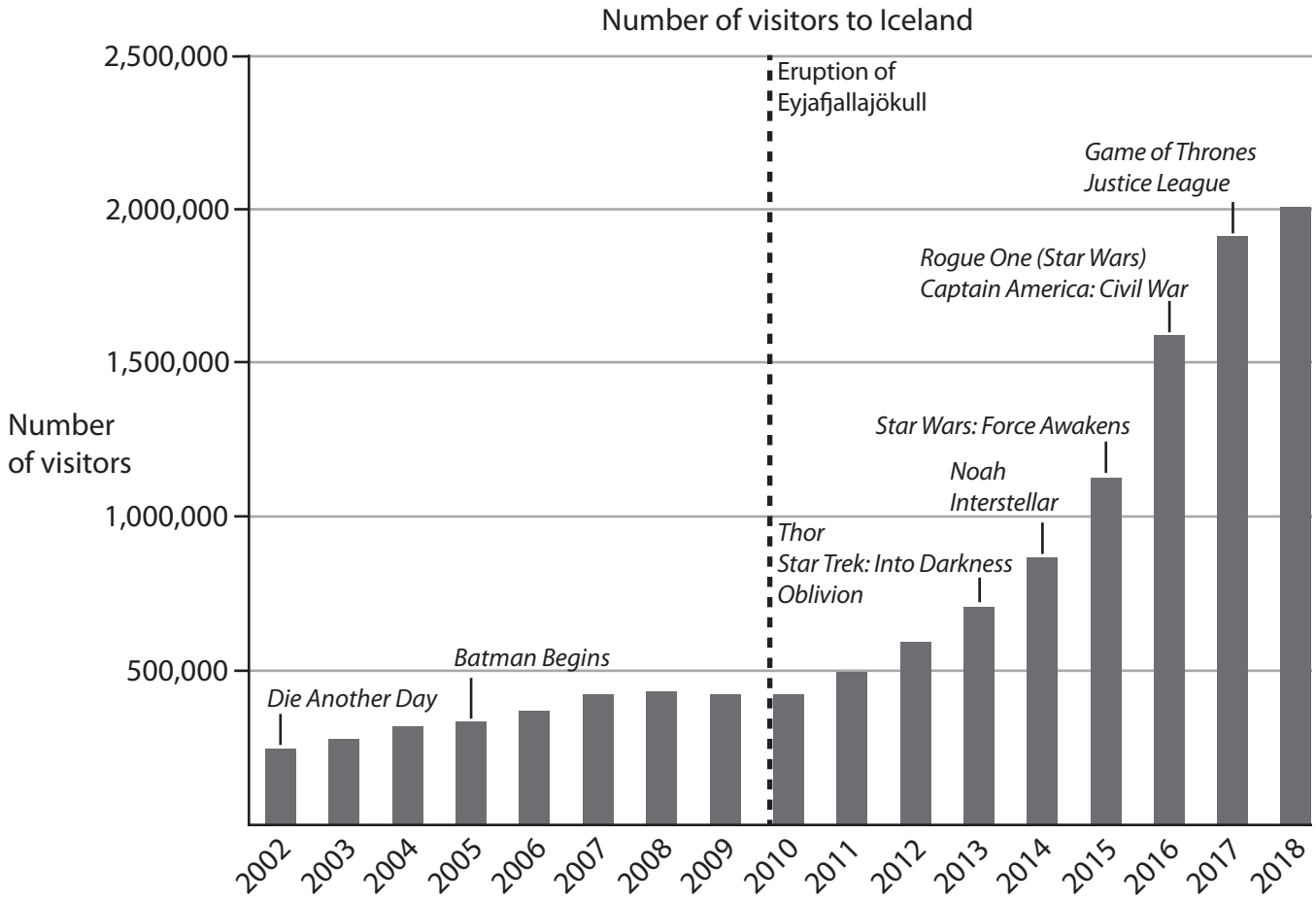


Figure 5c

Tourist numbers to Iceland and major film franchise releases with scenes filmed in Iceland

The rock is basalt (igneous rock) deposited during Katla's eruption in 1918. Although basalt is resistant to erosion, the columns allow water to drip through the rock, weakening its structure.

Katla has not deposited any new material recently, so the coastline is retreating quickly. Proposals to build a sea wall and new road have been opposed by residents.

The South Coast of Iceland is exposed to many Atlantic storms with very strong ocean currents. Every year tourists are killed by strong waves or hurt in accidents climbing over actively eroding rock.

50% of tourists visiting Iceland come to the Black Sands beach at Vik to see the spectacular coastal landforms, but many are unaware of the dangers of ashfall if a volcano erupted.

The church in Vik is the only location that would survive a flood or volcanic eruption.

House-rental prices have surged – the government taxes people who let out their homes for more than 90 days a year. The money funds preservation of Iceland's natural resources.

Figure 5d

Images of the Black Sands beach at Vik

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Acknowledgments
Pearson Education Ltd. gratefully acknowledges all following sources used in the preparation of this paper:

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Figure 1b: © travelgame/Getty Images
Figure 1c: https://en.wikipedia.org/wiki/List_of_earthquakes_in_2018#By_death_toll
Figure 2: © Granger Historical Picture Archive/Alamy Stock Photo
Figure 3: © Eric Carr/Alamy Stock Photo and © Izzet Noyan Yilmaz/Alamy Stock Photo
Figure 4: © geogphotos/Alamy Stock Photo
Figure 5b: © Chris.urs-o & Robot8A
Figure 5c: https://skift.com/iceland-tourism/
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