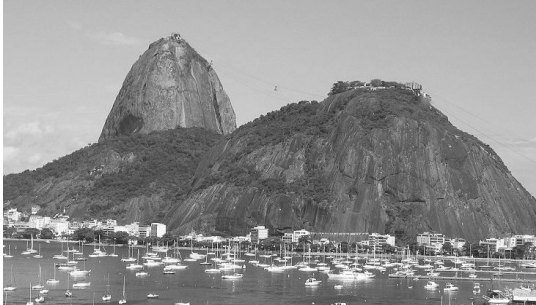


5. GEOMORPHOLOGY

1. Match the pictures and place names

the Cordilleras, Peru the Dyje region, CR the Sahara, Algeria
 Antarctica Sugarloaf Mountain, Rio de Janeiro valley of Háj village, Slovak Karst

2. What process or which landform is illustrated by each picture?



1



2



3



4



5



6

Vocabulary – Clue

sinkhole, frost polygons, meanders, moraine, ice wedges, dome, yardang, glacier,

3. Pre-listening. Which natural forces shape the Earth's surface and how? List them.

LISTENING: Physical Geography II – Geomorphology

<http://www.youtube.com/watch?v=GkcjTRMTst0>

Listen to and watch the video and fill in the missing parts of sentences.

- 1) Erosion is the process by which.....
- 2) Depositional features are those which
- 3) Grinding and smashing effect is caused by.....
- 4) Natural arches and pinnacles can be found in
- 5) Dunes are created when
- 6) Given enough time, water can wear away even
- 7) V shaped canyon has been formed by
- 8) Arroyos or washes are
- 9) Repeated heating and cooling of rocks causes.....
- 10) At night, water in creaks, causing rock
- 11) Exfoliation takes place in granite which was originally
- 12) Gravity influences rocks in a way that.....

READING: Aeolian processes

From Wikipedia, the free encyclopedia

1. Pre-reading. Explain these terms.

sediment sparse clay minerals landforms sphinx sculpture diameter hollow

2. Read about Aeolian processes and wind erosion and find what these terms refer to.

- a) **Aeolus**.....
- b) **arid environments**.....
- c) **deflation**
- d) **abrasion**
- e) **desert varnish**.....
- f) **ventifacts**
- g) **yardang**
- h) **blowouts**.....

Aeolian (or Eolian or Æolian) processes pertain to the activity of the winds and more specifically, to the winds' ability to shape the surface of the Earth and other planets. Winds may erode, transport, and deposit materials, and are effective agents in regions with sparse vegetation and a large supply of unconsolidated sediments. Although water is much more powerful than wind, aeolian processes are important in arid environments such as deserts. The term is derived from the name of the Greek god, Æolus, the keeper of the winds.

Wind erosion

Wind erodes the Earth's surface by deflation (the removal of loose, fine-grained particles), by the turbulent eddy action of the wind and by abrasion (the wearing down of surfaces by the grinding action and sandblasting of windborne particles). Regions which experience intense and sustained erosion are called deflation zones. Most aeolian deflation zones are composed of desert pavement, a sheet-like surface of rock fragments that remains after wind and water have removed the fine particles. Almost half of Earth's desert surfaces are stony deflation zones. The rock mantle in desert pavements protects the underlying material from deflation.

A dark, shiny stain, called desert varnish or rock varnish, is often found on the surfaces of some desert rocks that have been exposed at the surface for a long period of time. Manganese, iron oxides, hydroxides, and clay minerals form most varnishes and provide the shine.

Deflation basins, called blowouts, are hollows formed by the removal of particles by wind. Blowouts are generally small, but may be up to several kilometers in diameter. Wind-driven grains abrade landforms. Grinding by particles carried in the wind creates grooves or small depressions. Ventifacts are rocks which have been cut, and sometimes polished, by the abrasive action of wind. Sculpted landforms, called yardangs, are up to tens of meters high and kilometers long and are forms that have been streamlined by desert winds. The famous sphinx at Giza in Egypt may be a modified yardang.

3. WORD STUDY - find the verbs which describe what happens to rocks, landforms and sediments.

d - - - - t e - - - e ab - - - e ex - - - e
 t - - n - - - - t gr - - d p - - - - h

CLASSIFICATION

How can we classify geomorphologic processes? Complete the table.

<i>type of process</i>	<i>main factor in the process</i>	<i>examples of landforms</i>
1. Fluvial	.....	.....
2. Karst	water affecting limestone	.....
3. Glacial	.....	.....
4. Periglacial	freezing and thawing	.....
5. Eolian	.....	.....
6. Biogenic	.....	.....
7. Hillslope	force of gravity	.....

A moraines, eskers, lakes
B meander, gorge, delta
C peat bogs, coral reefs

D scree, tongue-like features
E sinkholes, canyons, polje

F ergs, dunes, loess areas
G ice wedges, patterned ground



esker



scree



sinkhole

DESCRIBING A PROCESS

Work in small groups. Prepare a description of a geomorphologic process of your choice. Then present the description to the class.

Listen to the presentations about processes from your classmates. Try to notice what typical vocabulary and language structures they use, and what functions their description has (e.g. to define, to compare, to describe, to evaluate, to instruct, ...).

Periglacial processes -Ground contraction

The freezing of the active layer during the severe winter cold causes the soil to contract. Cracks open up which are similar in appearance to the irregularly shaped polygons found on the bed of a dried-up lake. During the following summer, these cracks fill with meltwater and, sometimes, also with water and windblown deposits. When this water freezes, either the following winter or during cold summer nights, the cracks widen and deepen to form ice wedges. This process is repeated annually until the wedges, which underlie the perimeters of the polygons, grow to as much as 1m in thickness and 3 m in depth. Fossil wedges, i.e. cracks filled with sands and silt left by meltwater, are a sign of earlier periglacial conditions.

Waugh,p.133

HOMEWORK Sentence transformation - exam practice:

1. The soil contracts because of very low winter temperatures.

Very low winter temperatures cause the _____ . (3 words)

2. You can find irregularly shaped polygons on the bed of a dried-up lake.

Irregularly shaped polygons _____ on the bed of a dried-up lake. (3 words)

3. It is possible that the cracks will be filled with windblown deposits.

The cracks _____ filled with windblown deposits. (2 words)

4. This process is repeated annually until the wedges grow to the maximum of 1m in thickness and 3 m in depth.

This process is repeated annually until the wedges grow to _____ 1m in thickness and 3m in depth. (3 words)

Sources

D. Waugh, Geography, an Integrated Approach, 3rd edition, 2002

Listening and Reading parts prepared by Eva Čoupková