Bird migration – where the birds fly to?

Every year in autumn, approximately 50 billion migratory birds journey from their breeding grounds to milder winter habitats. Half a billion of these birds migrate across Austria. What is the reason for this movement of migration?"

Overview "Bird migration – where the birds fly to? "

What is the reason for bird migration?

Context
Everyday life
Further learning

Target group

Adult learners with basic arithmetic skills and an interest in nature

X**2**

Cognitive process
Analysing situations
Processing information
Mathematising
Problem solving
Critical thinking

Content
Quantity and number

Pattern, relationship and change

Outcomes and results

The learners are able to use and read calendars, maps, and diagrams.
They can calculate, estimate, and compare lengths, distances, and speed.

Dispositions
Self-confidence
Beliefs
Flexibility
Math anxiety
Math difficulties

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Main information

Content	Basic arithmetic skills (addition, multiplication, division) Reading maps, calendars, diagrams Estimating and calculating lengths and distances and speed
Target group	Adult learners with basic arithmetic skills and able to use them in everyday life
Learning intention	– Numeracy for personal and private purposes in everyday life
Duration	Approx. 2 hours
Material und resources	Videos, texts, diagrams, world-map, globe
Group size	5 – 20 learners
Problem statement	Every year in autumn, approximately 50 billion migratory birds journey from their breeding grounds to milder winter habitats. Half a billion of these birds migrate across Austria. What is the reason for this movement of migration?"
Working questions	Which bird flies the earliest? When? Which bird stays the longest? How long? Which bird flies the furthest distance? How far? Which bird flies the highest? How high? Which bird flies the fastest? How fast? Which bird returns first? When? Where does the bird take off and land? Which countries are flown over?
Learning outcomes and results	The learners are able to extract information from diagrams and maps, interpret it, and relate it to everyday situations

Working plan

Time (minutes)	Description of content and activities	Material	Methodical and didactic information[1]
30 min +	**Activation** Introduction of the topic using videos, texts, etc. In a further step, the trainer encourages the learners to exchange experiences and compare knowledge in the plenary session	Video (Appendix 1) Text (Appendix 2)	HITs Cognitive activation Questioning Critical thinking
45 min +	**Activity** The learners work in small groups: They link the information on the map with the information in the bird portraits: • Where does the bird take off and land? • Which countries / mountains / deserts does it fly over? Each group analyses and interprets the data and then prepares a short presentation. For additional information, the learners can research on the Internet	Maps and bird descriptions (Appendix 3 and 4) globe, world map smartphone, tablet, laptop for the research on the Internet	HITs Collaborative learning Differentiated teaching
30 min +	**Presentation and reflexion** The learners compare the information they have collected in the small groups and answer questions about it. The results are visualized on the blackboard or flipchart.	Questions (Appendix 5) Globe, world map Diagram (Appendix 6) Flipchart, blackboard	HITs Collaborative learning Hands on learning Questioning

[1] for description and explanation of kinds of tasks, HITS and other background information please consult the teachers'/user's guide

Suggestions for the teacher/user

The example presented here should be considered as exemplary and inspirational material presenting a guideline with a high range of possibilities of adapting those suggestions to a specific group of learners or an individual learner with his or her very personal requirements.

In concrete terms, the example (Bird migration – where the birds fly to) could be adapted these ways:

- Duration: The duration of this example can vary greatly depending on the interest of the learners. Unfamiliar vocabulary may need to be worked on beforehand. Participants may have their own experience or prior knowledge of the topic. Let "expert knowledge" enrich the course.
- Further or additional materials: This example can be extended in various ways:
    - o compass points, understanding a compass
    - o orientation and navigation on a map
    - o eventually retracing own migration routes of learners (note: As this is a very sensitive topic, this exercise might not be suitable for some participants)
- Learning environment: This example focuses also on the presentation of the results obtained. Some learners might be afraid of presenting their results in front of other people. So, make sure that the small group is well formed and support the learners in preparing their presentation.

Our educational activities aim at numeracy skills being not only memorized, but first of all being practiced and functionally used by the learners in daily life or/and vocational situations. It is therefore recommended to implement the idea of HITS[2] (higher impacts of teaching skills) as far and often as possible: ...

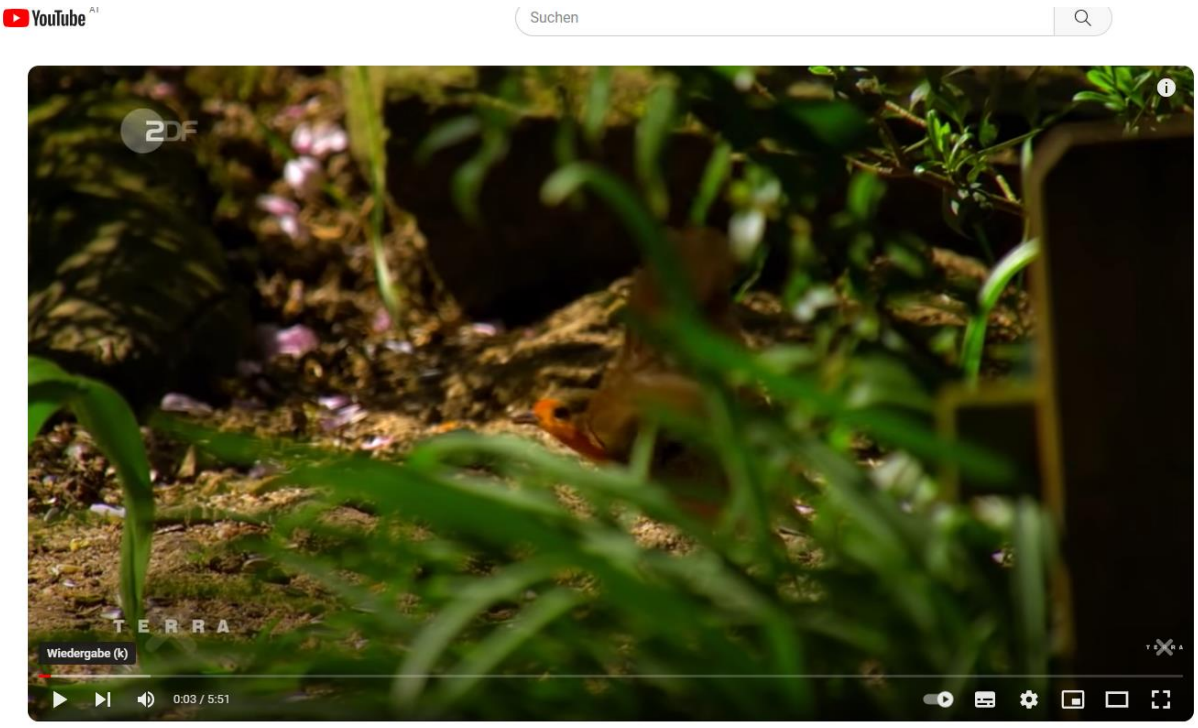
- ... ask the learners questions and let them raise questions themselves. It can be crucial to discuss numeracy themes, contexts and numbers.
- ... think of possible ways of transfer: The learners should be enabled to present their results clearly and briefly. They can find their way around a map, estimate distances, understand and compare distances and times.
- ... encourage learners to learn collaboratively.

[2] For general information and explanation on HITS please see the teachers'/user's guide

Appendix 1

Example: video about migratory birds

www.youtube.com/watch?v=a_HMqQw3KnE [27.11.2023]



Der geheime Trick der Zugvögel

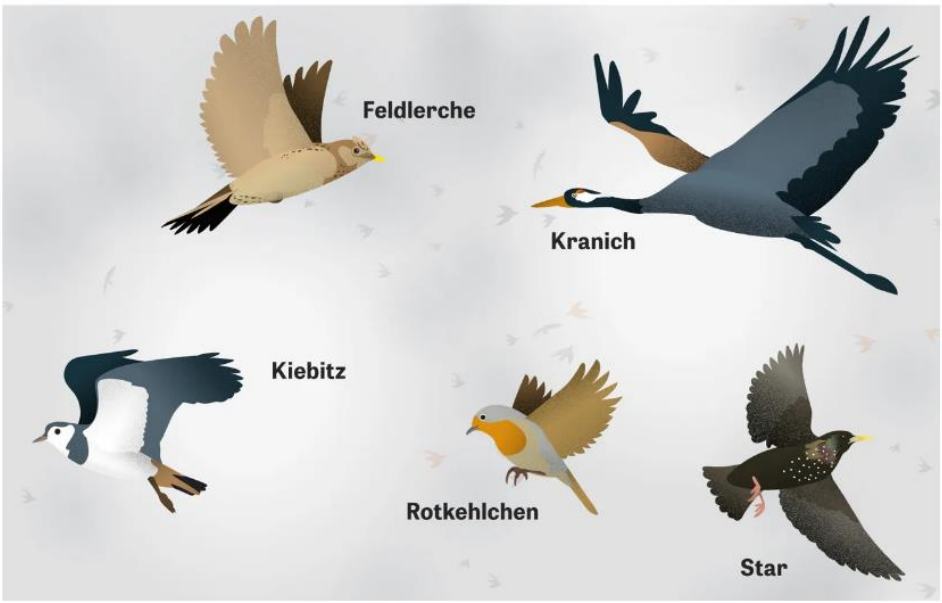
Appendix 2

Example: text about migratory birds

http://www.zeit.de/2020/16/zugvoegel-vogelarten-flugrouten-distanz-brutgebiete [27.11.2023]

Kurzstrecke

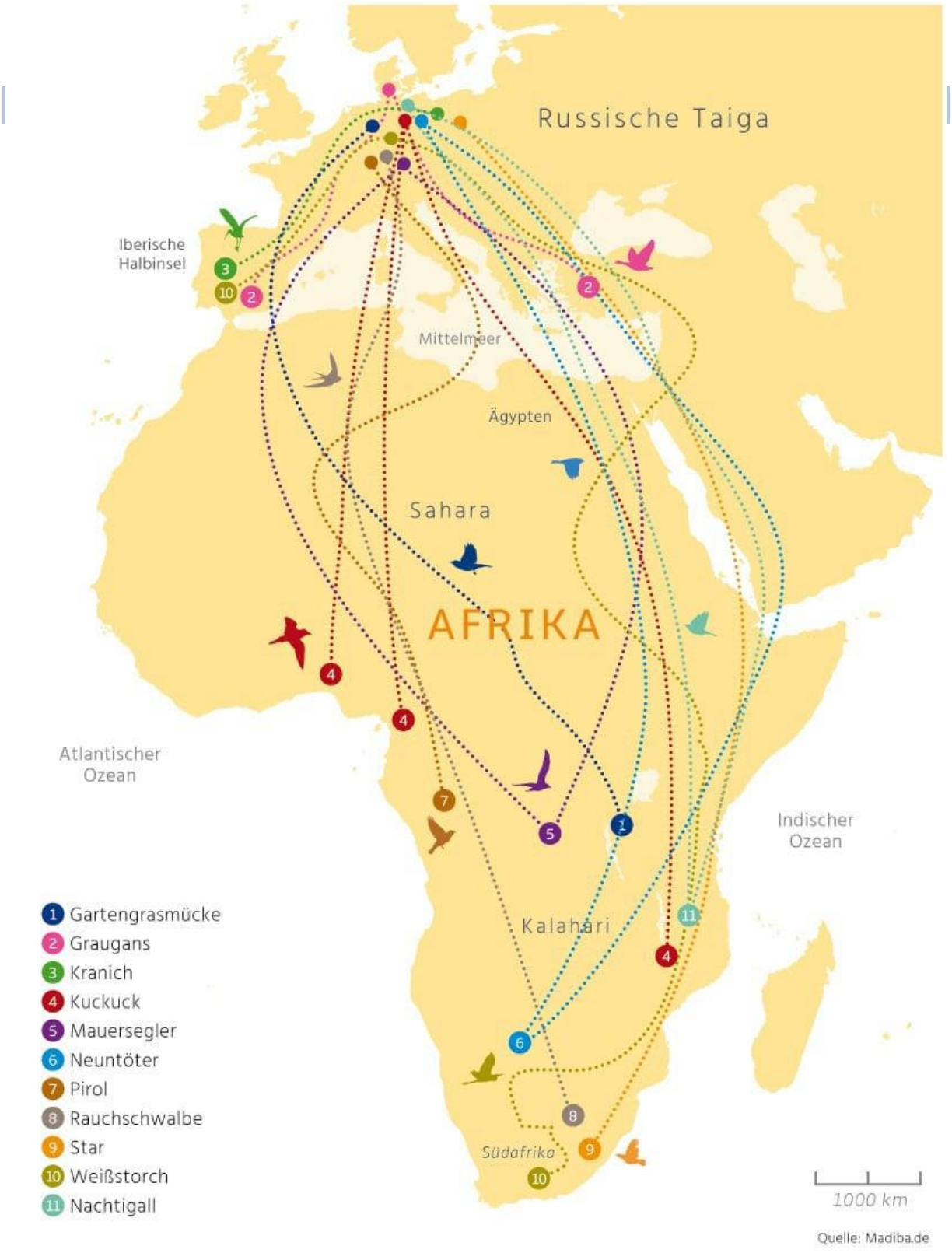
Rotkehlchen, Kranich oder Star gehören zu den sogenannten Kurzstreckenziehern, ihr Winterquartier im Mittelmeerraum und Westeuropa ist höchstens 2000 Kilometer entfernt. Sie fliegen in Schwärmen und richten sich nach dem Wetter: Ist der Winter mild, brechen sie im Herbst später auf und kehren im Frühjahr früher zurück.



Mittelstrecke

Drossel und Zilpzalp zählen zu den Mittelstreckenziehern. Die überwintern zwischen 2000 und 4000 Kilometer von ihrem Brutgebiet entfernt. Der Zilpzalp verbringt den Winter etwa im Mittelmeerraum oder im ostafrikanischen Hochland. Unter den Mittelstreckenziehern findet man auch viele Teilzieher – Vogelpopulationen, in denen manche Vögel aufbrechen und andere bleiben.

Appendix 3



Quelle: www.mabida.de

Appendix 4

Example: website about descriptions of birds

www.nabu.de/tiere-und-pflanzen/voegel/portraets/index.html [27.11.2023]

Appendix 5

Examples for possible questions :

- Which bird flies the earliest? When?

- Which bird stays the longest? How long?

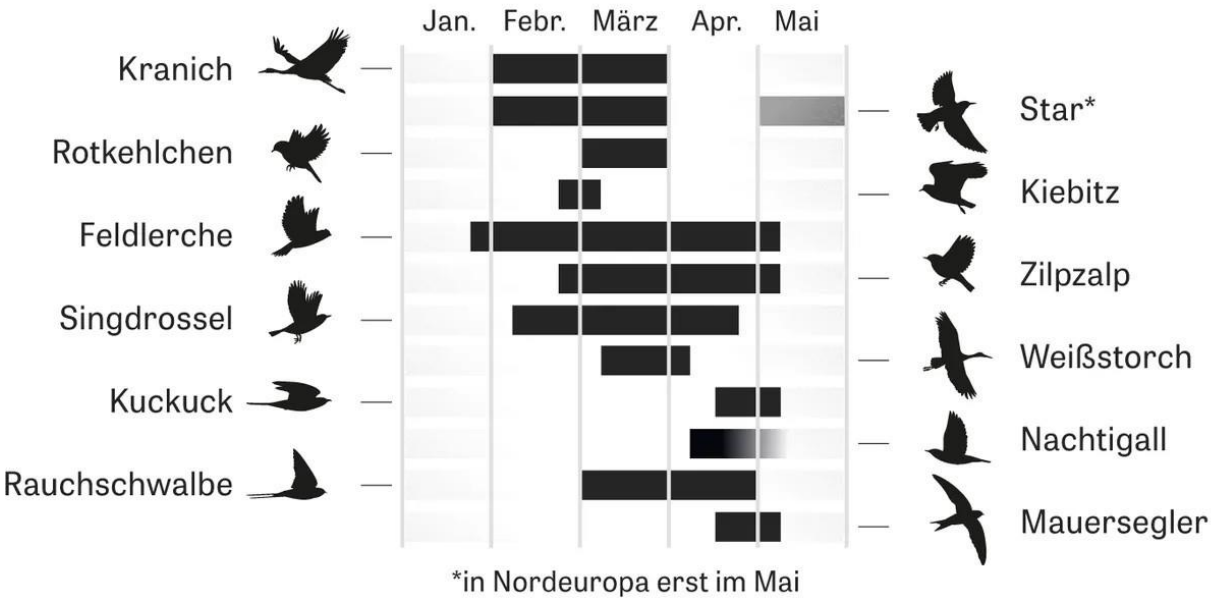
- Which bird flies the furthest? How far?

- Which bird flies the highest? How high?

- Which bird flies the fastest? How fast?

- Which bird comes back first? When?

Anhang 6



Quelle: www.zeit.de