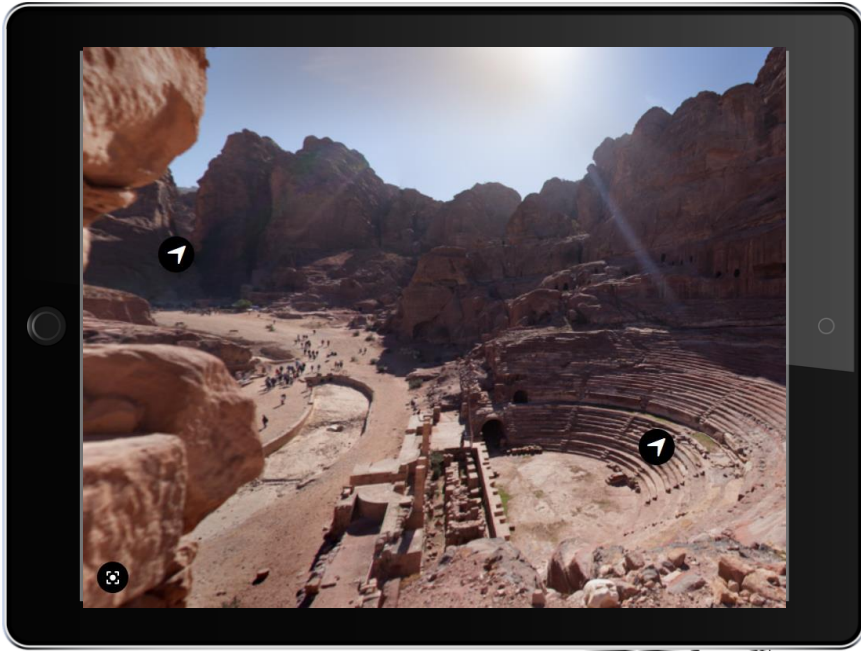


Rethinking Field Trips in the Digital Era

Perspectives and Insights from the Life Sciences

A *digital* field trip — What does this mean?

VIRTUAL & REMOTE



AUGMENTED & ON THE GROUND



Virtual Field Trips

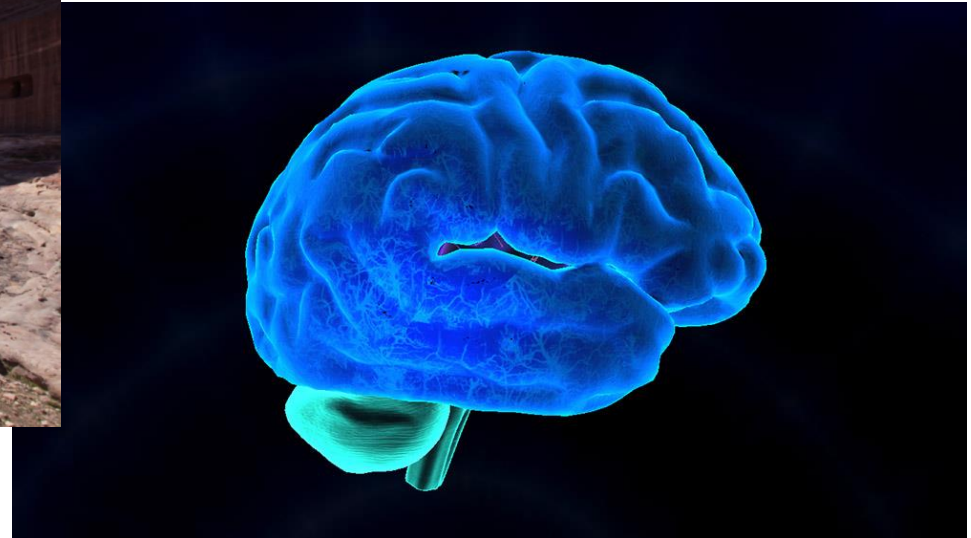
remote digital field trips

Why *Virtual* Field Trips?

- 1. Exploring places where you cannot easily go**
- 2. Combining remote and real excursions**
- 3. Virtual tours can be interactive!**

Virtual, field trips: Overview

- Idea: Students can explore places for themselves virtually by clicking at hotspots to get more information or move on to other places, turn around in an image or video, navigate through a 3D environment...
- For example with an interactive map, image, video or a even a virtual 3d environment



360° Images

- A 360-degree photo is a controllable panoramic image that surrounds the original point from which the shot was taken
- Possible enhancements for more interaction: a task sheet, hotspots (depending on the tool that is used)



Source: <https://kuula.co/share/7sYRs?fs=1&vr=0&zoom=1&gyro=0&thumbs=1&alpha=0.60&inst=de&info=1&logo=1>

Example case

In the bachelor module Forest Growth and Forest Management, students are supposed to use the 360° images and an assignment sheet to create a yield and production plan for a forest stand within 45 minutes.



Forsteinrichtung (BSc.) Virtuelle Außenübung II Bestand B

Standort

Sie befinden sich im Forstamt Reinhausen in der Revierförsterei Reyershausen.

Szenario

Sie sind Forsteinrichter und müssen kurzfristig den Auftrag eines Kollegen übernehmen. Die qualitative und quantitative Bestandesbeschreibung hat er bereits durchgeführt. Diese Werte sollten Sie jedoch besser noch einmal kritisch prüfen.

Was Ihnen noch fehlt ist die qualitative und quantitative Maßnahmenplanung (Ertrags- und Produktionsplanung) für die nächste Einrichtungsperiode. Sie sollen diese dann dem Waldbesitzer (Revierleiter) vorstellen. Es ist daher wichtig, dass Sie Ihre Entscheidung gut begründen können!

(Es gibt kein richtig und falsch nur gute oder schwache Argumente!)

Sie haben maximal 45 Minuten Zeit

Aufgabenstellung in den Kleingruppen

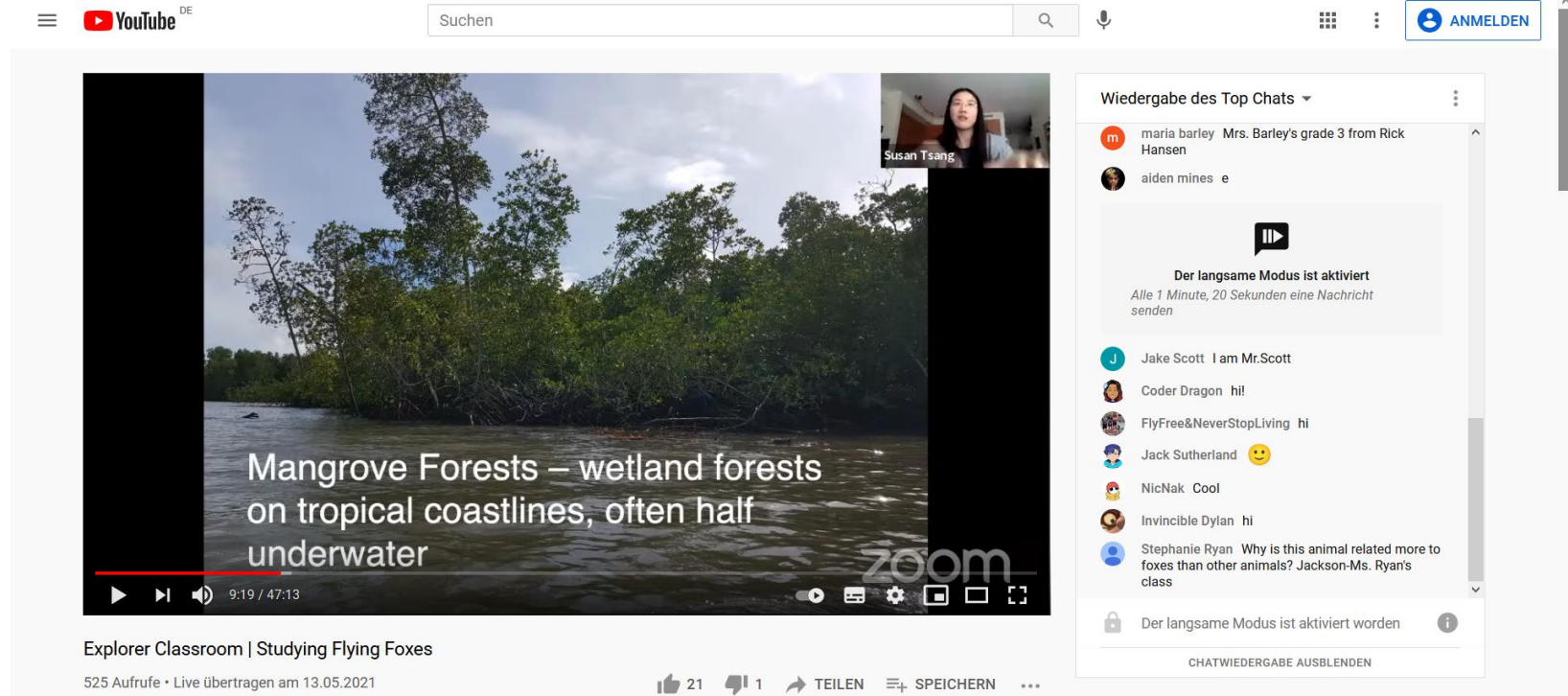
1. Schalten Sie Mikrofon und Kamera an
2. Schauen Sie sich dann die Videos/Fotos des zugeordneten Bestandes an. Sie finden diese im courseware Reiter unter Außenübung II
3. Überprüfen und ergänzen Sie die qualitative (verbale) und quantitative (zahlenmäßig, tabellarische) Zustandsbeschreibung für den Ihnen zugeteilten Bestand (bzw. Bestandsteil). Prüfen Sie kritisch die Informationen
4. Was würden Sie in diesem Bestand für die nächsten 10 Jahre waldbaulich planen? Sie können auch mehrere Alternativen vorstellen.
5. Kalkulieren Sie die erwarteten Vor- bzw. Endnutzungsmengen.
6. Stellen Sie Ihre Beschreibung und Planung dem Waldbesitzer (Revierleiter) (d.h. Tutorenteam) vor. Verteidigen Sie Ihre Planung mit entsprechenden und strukturierten Argumenten.

Materialien und Hilfestellungen

- Verwenden Sie zur schnellen Abschätzung alle Ihnen bekannten Hilfsmittel und Unterlagen (Sie können in der Gruppe auch Ihren Bildschirm teilen um zusammenzuarbeiten!)
- Versuchen Sie eine möglichst vollständige qualitative und quantitative Bestandesbeschreibung und **insbesondere gut begründete Planung** bzw. Planungsalternativen (s. letzte Seite) zu erstellen.

Field Trip Videos

- Videos designed to recreate a physical excursion
- Possible interaction: Chat, questions, hotspots (depending on the tool that is used)
- Can be live or recorded

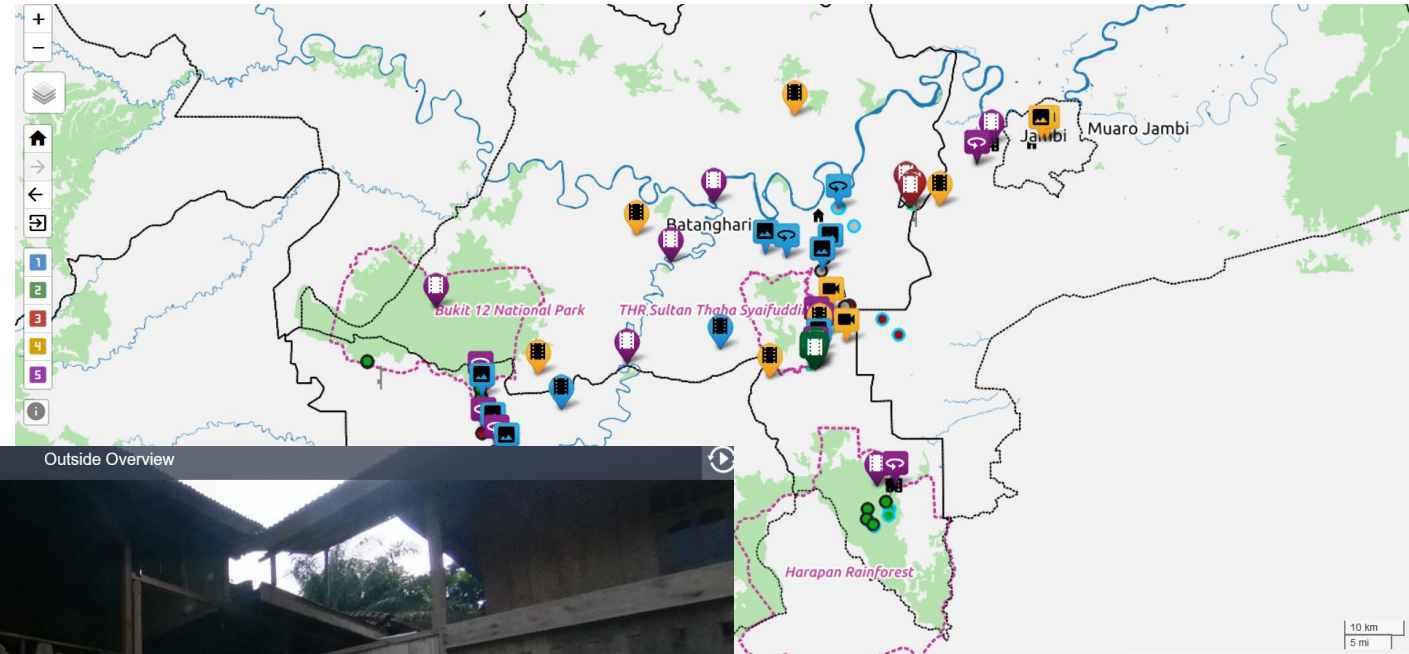


The screenshot displays a YouTube live stream interface. The main video player shows a scenic view of mangrove forests with a river in the foreground. The video title is "Mangrove Forests – wetland forests on tropical coastlines, often half underwater". The video is being live-streamed by "Explorer Classroom | Studying Flying Foxes". The interface includes a search bar at the top, a navigation menu, and a live chat window on the right side. The chat window shows a list of messages from viewers, including "maria barley Mrs. Barley's grade 3 from Rick Hansen" and "aiden mines e". A notification in the chat indicates that "Der langsame Modus ist aktiviert" (Slow mode is activated).

Example: Explorer Classroom | Studying Flying Foxes by National Geographic – youtube video with live chat
<https://youtu.be/8ugkoMi1mVU>

Example: Interactive Field Tour to the EFForTS project

- Explore the 5 research locations of the EFForTS project in Indonesia on the interactive map
- Each location offers videos, images (also 360°) and interactive tours which are popping up by clicking on a corresponding icon



Where to find virtual field trips

Databases and websites

Google Arts and Culture website

- VR environments and image collections
- view places as 360°-videos or images via web browser or app
- many places like botanical gardens



Royal Botanic Gardens
Kew

Royal Botanic Gardens, Kew
London, Vereinigtes Königreich



Museum Kampa
Prague, Tschechien



Oak Spring Garden Foundation
Upperville, Virginia, Vereinigte Staaten



Centrale Montemartini
Rome, Italien



Gozo Nature Museum
Ir-Rabat Għawdex, Malta



The Arnold Arboretum of Harvard University
Boston, Vereinigte Staaten



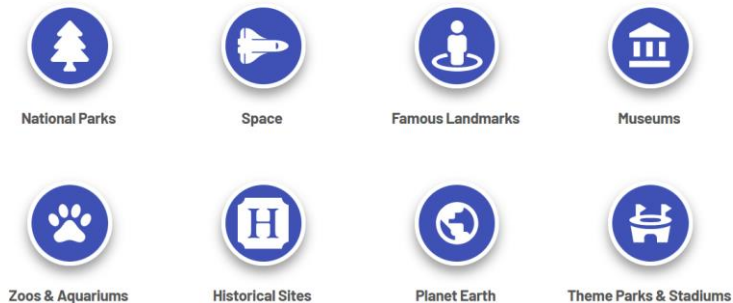
Borgo Medievale Torino
Torino, Italien



Cambridge University Botanic Garden
Cambridge, Vereinigtes Königreich

Ditch that textbook

- Ditch that textbook: collection of virtual tours (weblinks to other websites)
 1. self guided to start immediately with varying levels of information
 2. Guided, where the teacher will set up ahead of time and often includes a guide from the destination
- 8 major categories:



Example from the National Parks category, self guided: <https://www.virtualyosemite.org/virtual-tour/#node27>

HistoryView

- HistoryView: Virtual Tours of Museums, Art Galleries, National Parks and Historic Sites
- Places can be chosen with an interactive map



Example: Costa Rica Jungle, 360° video, <https://historyview.org/library/costa-rican-jungle/>

Other resources for self-exploration



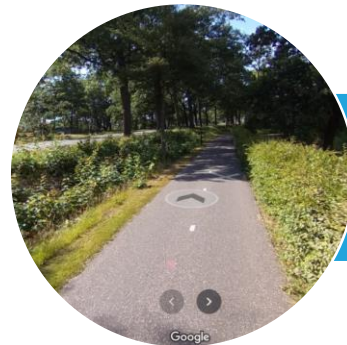
Google Earth

<https://www.google.de/intl/de/earth/index.html>



Mapillary

<https://www.mapillary.com>



Google street view

<https://www.google.de/intl/de/streetview/>

Free Digital Databases for Guided Experiences

RECENT EXPLORER CLASSROOMS

Check out some recent Explorer Classroom recordings or explore the full archive on [YouTube](#).



Unplastify your World | Agustina Besada

Agustina Besada crossed the Atlantic Ocean in a 36-foot sailboat twice to research ocean plastics! That adventure led her to co-found Unplastify, a social enterprise on a mission to change the human relationship with plastic and accelerate change.



Seeing the Sea Floor | Zoleka Filander

Join marine biologist Zoleka Filander for an up-close look at how she's using tools like ROVs (remote operated vehicles) to see and study the sea floor!



Getting the Shot | Mark Thiessen

Mark Thiessen has been a staff photographer for National Geographic since 1990 and has published numerous feature stories and covers for National Geographic magazine. Join him to learn how he gets the perfect shot & tells complicated stories visually.



Exploring t

Join explore OceanXplor vessel ever B most unreach findings with

National Geographic and its youtube channel

-> Youtube livestreams, Chat with experts -> example

Upcoming Lessons



Arbor Day: Celebrating Our Trees (Grades K-8 in April)



Operation Pollination (Grades 1-6)

Longwood Gardens website
-> Zoom events with images and videos, with educators, registration required



A Plant's Life (Grades 1-4)



Desert Plant Adaptations (Grades 3-6)

Create own virtual tours

Tools

H5P

- A nice tool where you can create interactive elements
- It's available via webbrowser and within many learning platforms like ILIAS
- Lots of different elements available (see examples next slide)
- Very easy to use



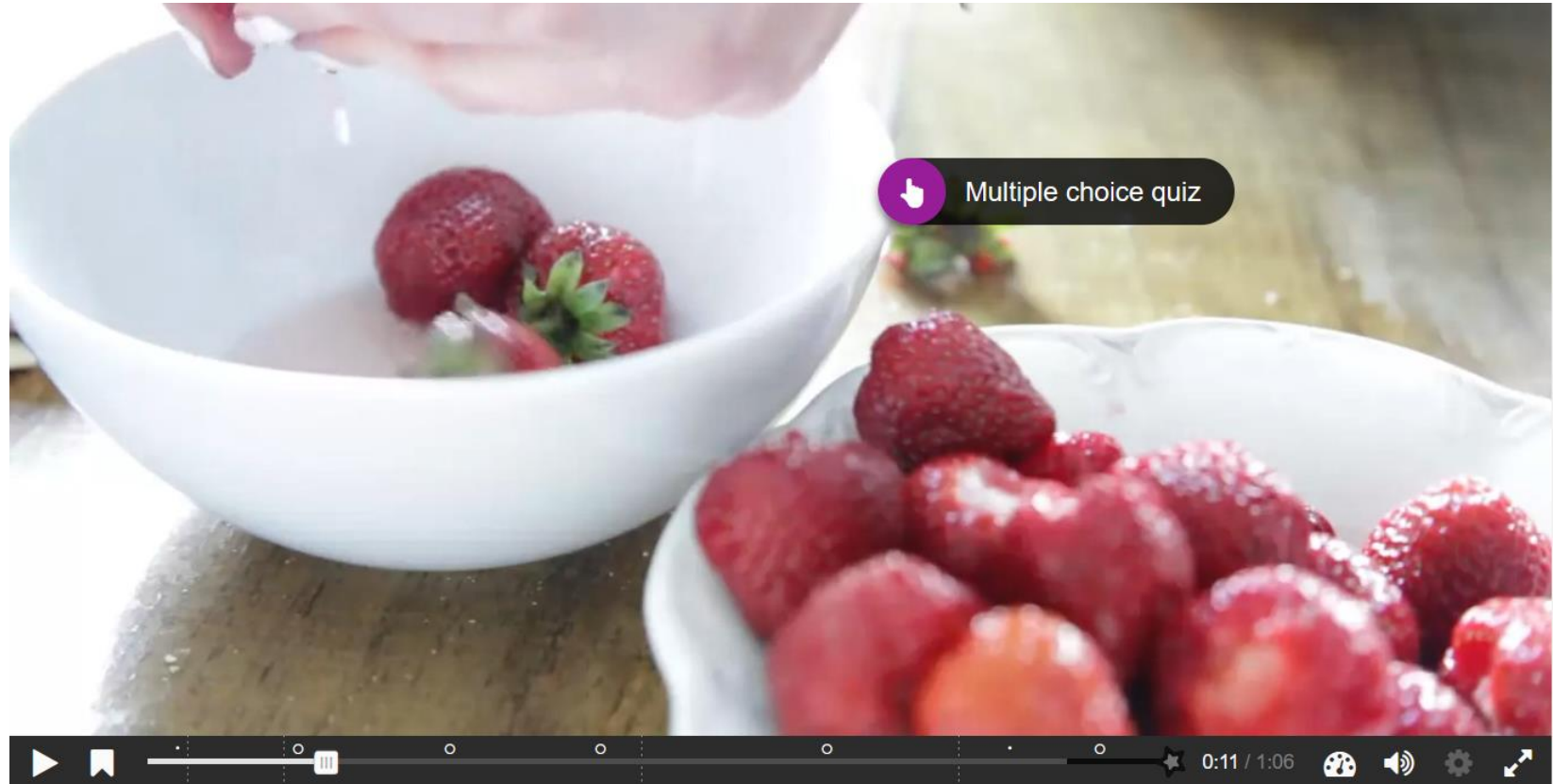
H5P Virtual Tour (360)

“A free HTML5 based virtual tour content type allowing users to add questions, texts and interactions (explanations, videos, sounds, and interactive questions) to multiple 360 environments using only a web browser.”



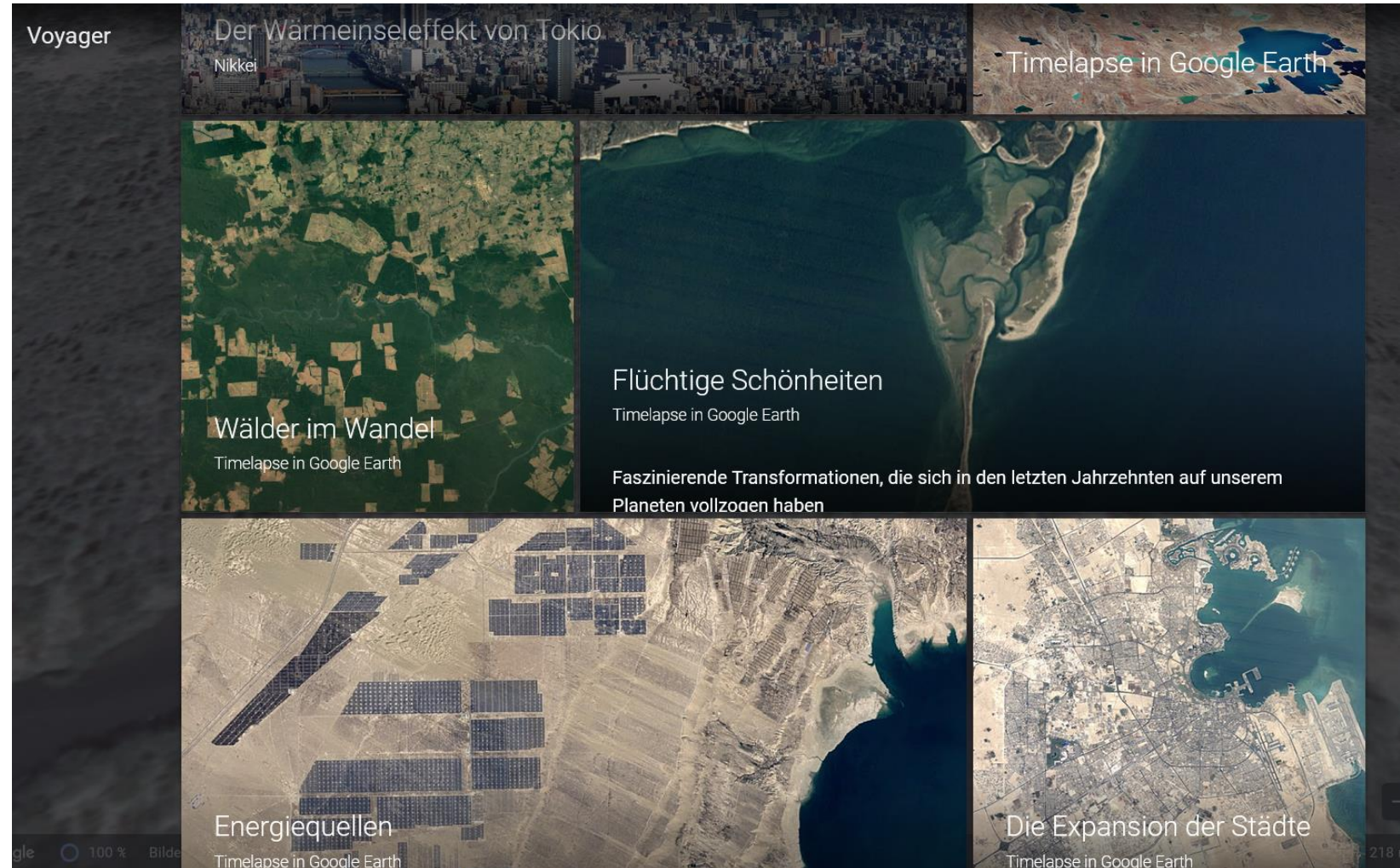
H5P Interactive video

“An HTML5-based interactive video content type allowing users to add multiple choice and fill in the blank questions, pop-up text and other types of interactions to their videos using only a web browser.”

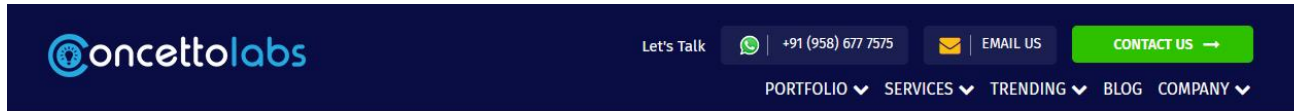


Google Earth Voyager – Resources and tool

- Resources: Ready tours with quizzes
- Tool: Students can create their own virtual field trip with the Tour button from their desktops and narrate what they see and record it for the class with texts and images



Create own 360° images with your smartphone



[Home](#) > [Blog](#) > [Mobile App Development](#) > [Best 360 Camera Apps For iPhone And Android](#)

Best 360 Camera Apps For iPhone And Android



By [Manish Patel](#) | Monday, May 14, 2018 06:29 PM | [11 min read](#)



- Google Street View
- Panorama 360
- Photo 360 degree by Sfera
- Cardboard Camera
- 360cam
- Cycloramic
- Panorama
- FOV
- Fyuse
- Twister

Augmented Field Trips

digital field trips on the ground

Digital options for documentation by students

Formats

- Digital learning diary with photographs
- Interviews with experts
- Audio report
- Explanation videos to specific topics
- Contents for a digital learning tour (—> Bodenlehrpfad)

Benefits

- Learning by teaching/explaining
- Practices digital skills and media skills
- Publication and reuse possible

Helpful Applications — Identification Apps

Variants

- Apps helping you identifying an organism step by step
- Apps using machine learning for identification

Some features

- Can provide additional information about the organism.
- Sighting can be documented (incl. geodata)
- Photograph can be shared with a community

Benefits

- Documentation could be useful for nature conservation
- Everybody can use it without prior knowledge



Helpful Applications — Identification Apps: Examples

General

- [observation.org / obsMapp / iObs](#) (Netherlands)
- [seek by iNaturalist](#) (United States)
- [SmartScan - Identify Plants, Flowers, Animals, etc](#) (Hongkong, only Android)

Plants

- [Pl@ntNet / PlantNet](#) (France)
- [Flora Incognita](#) (Germany)
- [AndyGreen](#) (Swiss)
- [Garden Answers Plant Identifier](#) (United States)

Animals

- [Animal Tracker](#) (Germany)



Helpful Applications — Map and Hiking Apps

Features

- GPS-based application for orientation
- Providing different sets of maps
- Creating tracks and saving them as GPX file
- Loading GPX files containing trails or single waypoints

Example

- MyTrails

Applications as Interactive Tour Guides

- Edited informations about a single location or about a tour with different spots
- GPS-based or with QR codes

Formats

- directions
- texts
- pictures
- quizzes

Examples

- Actionbound
- GöTours



Interactive Tour Guide — GöTours



Features

- Tours with different stations
- QR codes at the stations on the ground
- Tours can be downloaded and then be used offline
- directions, texts, pictures and quizzes for each station

Example: Pedological Nature Trail at Versuchsgut Reinshof in Friedland

- Tour with 12 stations
- created by students of the pedology course
- for self-guided excursions
- used as extracurricular learning space by secondary school students



Self-guided tours

- Geographic information systems make it easy to explore field trips without tour guides
- self-dependent time management

Tools

- Comprehensive info on the locations, scope and duration of the excursion
- digital maps or hiking apps where you can upload track files
- Tasks or practises for each station of the tour
- Possible digital enrichment with audio files, observation and determination apps

Why *Augmented* Field Trips?

1. Providing additional information

- Access to professional information on individual request
- Showing of scenarios which can't be seen or heard on the ground (because of season or daytime)

2. Gathering and linking new data

- for documentation
- for nature conservation
- Practices scientific competences

Thanks for your interest!

liveSciences³ — Transnational and Digital Linked Life Sciences



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