

Augmented Reality meets RM

A general introduction to the world of Raw Materials

Teacher/Instructor: Practical Guide



Lesson plan - Overview

1. Lesson opening (Brainstorming): Augmented Reality App using the trigger to view a haul truck

What is the name of this machine?

Where can you find this machine?

What does this machine do?

What does that have to do with us?

2. Video: MIREBOOKS – To see, how the haul truck works in real life

3. World Café Method: The right questions are the backbone of the World Café method. They should be formulated in an exciting way and make the participants curious to get into conversations. At the same time they should be simple and understandable. (4 groups) – (PPT – with information & guidelines)

Task a: Draw a picture on mining (e.g. MIRO board)

Task b: Each group defines 3 key words about mining (Chat – Teacher can collect the words)

Task c: Mining countries on the world map (shared world map)

Task d: Mobile phone (with pictures - questionnaire)

How many mobile phones does your family have?

What do you do with your old ones?

Why do you think it is necessary to recycle your old mobile phone?

4. Recap and correlation from all 4 stations to bring the lesson to a close

General Instructions

Preperation for before the lesson:

Ask the pupils to download one of the following Apps from the Dropbox-Link below:

RIC_HaulyUsingTheTriggerOnPaper – if you print out the trigger or

RIC_HaulyUsingTheTriggerOnThePc – if the pupils scan the trigger from a laptop or projector

AR app

They will use this to view the haul truck in augmented reality. It works similarly to a QR scan, they hold their mobile devices over the ,marker/trigger‘ icon and then the haul truck will come to life!

Link: <https://www.dropbox.com/sh/5wwupvv1197y4vx/AAC-EJZwqhjeKC46XiDwOtiga?dl=0> (Apps are only for Android) If the link does not work, copy and paste it into your browser!

MIRO (or a similar platform)

This is a collaborative board, where your pupils can work on tasks together in real time. They can work on seperate tasks within the one board by using breakout rooms within your video confernece platform to create groups. Prior to the lesson they can create a free account.

They will use this collaborative board for carrying out the tasks in the World Café exercise.

Link: <https://miro.com/>

INTRODUCTION

- Please download one of the „RIC_Hauly“ apps
- Open the app and
- Scan the next slide or the printed paper with your device



3D OBJECT



1. Lesson opening (Brainstorming): Augmented Reality App using the trigger to view a Haul Truck

Questions to lead a brainstorming introduction to the lesson:

What is the name of this machine?

Where can you find this machine?

What does this machine do?

What does that have to do with us?



1. Lesson opening (Brainstorming): Augmented Reality App using the trigger to view a Haul Truck

General information about a haul truck:

- A haul truck, also known as a 'hauly', is a machine that you will typically find in specialized engineering environments. Particularly so, in the raw materials field of mining!
- They are off-highway rigid dump trucks specifically engineered for use in high production mining and heavy-duty construction environments. Haul truck capacities range from 40 tons to 400 tons.
- The 'Belaz 75710' haul truck, can carry up 496 tons and is the biggest mining dump truck in the world!
- In mine sites they blast the rocks to retrieve the minerals/ores needed to manufacture every day items, e.g. **Erzberg** represents the largest iron ore reserves in Austria, having estimated reserves of 235 million tons of ore. The **mine** produces around 2,153,000 tons of iron ore per year.
- This is used in the steel industry and used to make things like: Auto-mobiles, Knives & Forks, Fridges etc. On average 75% of the weight of a typical household appliance comes from steel!
- More than 90% of iron and steel is recycled and that is more than any other recycled material...

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2. Erzberg Mine in Austria



2. Video: MIREBOOKS – How the haul truck ‘hauly’ works in real life...

This video will demonstrate how the haul truck functions in real life at a mine.

The video lasts approximately 1.43 minutes and was taken at the Erzberg mine in Austria, which is currently run and operated by VA Erzberg GmbH. The video was realized as part of the EIT MiReBooks project.

Video link: <https://www.youtube.com/watch?v=QpIQLNXbmk4>





WORLD CAFE´

WORLD CAFE'

I: DRAW A PICTURE OF A MINING SITE



II. DEFINE 3 KEY WORDS ABOUT MINING



III. MINING COUNTRIES ON THE WORLD MAP



IV. MOBILE PHONE



- How many mobile phones does your family have?
- What do you do with your old ones?
- Why should we recycle our old mobile phones?

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RawMaterials
Connecting matters



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