

# Instruction

Creating interactive content with Lumi

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## Instructions for creating interactive content with Lumi

This guide describes in detail how you can use the Lumi platform (based on H5P) to create and share interactive online content. Lumi offers a user-friendly environment that enables teachers and students to design a wide range of digital content and integrate it into teaching and learning contexts.

### 1. Registration and Login at Lumi

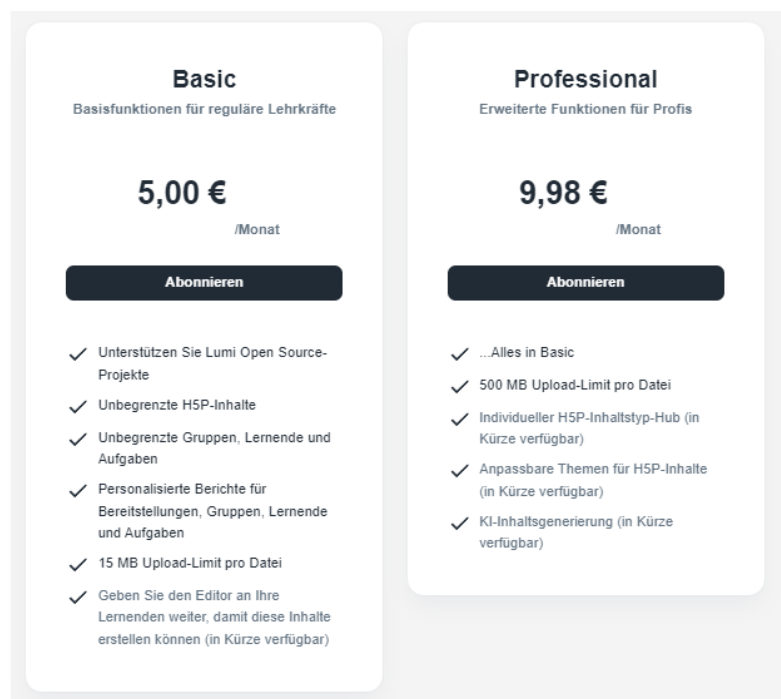
You need to register to create interactive content with Lumi. To do so, visit <https://lumi.education/en/>.

1. Click the **Register** button on the right.
2. Enter your email address and a secure password.
3. Complete the registration process by activating the confirmation email.

### 2. Lumi payment model

Lumi offers two subscriptions: Basic for €5.00 per month and Professional for €9.98 per month.

- **Basic:** Includes unlimited H5P content, groups, reports, and a 15MB file upload limit. Teachers can push content to students.
- **Professional:** Includes all the features of Basic, plus a 500MB upload limit per file, a custom H5P content hub, customizable themes, and upcoming AI



Basic	Professional
Basisfunktionen für reguläre Lehrkräfte	Erweiterte Funktionen für Profis
<b>5,00 €</b> /Monat	<b>9,98 €</b> /Monat
<b>Abonnieren</b>	<b>Abonnieren</b>
<ul style="list-style-type: none"> <li>✓ Unterstützen Sie Lumi Open Source-Projekte</li> <li>✓ Unbegrenzte H5P-Inhalte</li> <li>✓ Unbegrenzte Gruppen, Lernende und Aufgaben</li> <li>✓ Personalisierte Berichte für Bereitstellungen, Gruppen, Lernende und Aufgaben</li> <li>✓ 15 MB Upload-Limit pro Datei</li> <li>✓ Geben Sie den Editor an Ihre Lernenden weiter, damit diese Inhalte erstellen können (in Kürze verfügbar)</li> </ul>	<ul style="list-style-type: none"> <li>✓ ...Alles in Basic</li> <li>✓ 500 MB Upload-Limit pro Datei</li> <li>✓ Individueller H5P-Inhaltstyp-Hub (in Kürze verfügbar)</li> <li>✓ Anpassbare Themen für H5P-Inhalte (in Kürze verfügbar)</li> <li>✓ KI-Inhaltsgenerierung (in Kürze verfügbar)</li> </ul>

Figure 0: Lumi payment models

### 3. Registration

After successful registration, log in with your access data to access your **dashboard**. This dashboard gives you an overview of the content you have created. Initially, it was empty because you had not yet created any content.

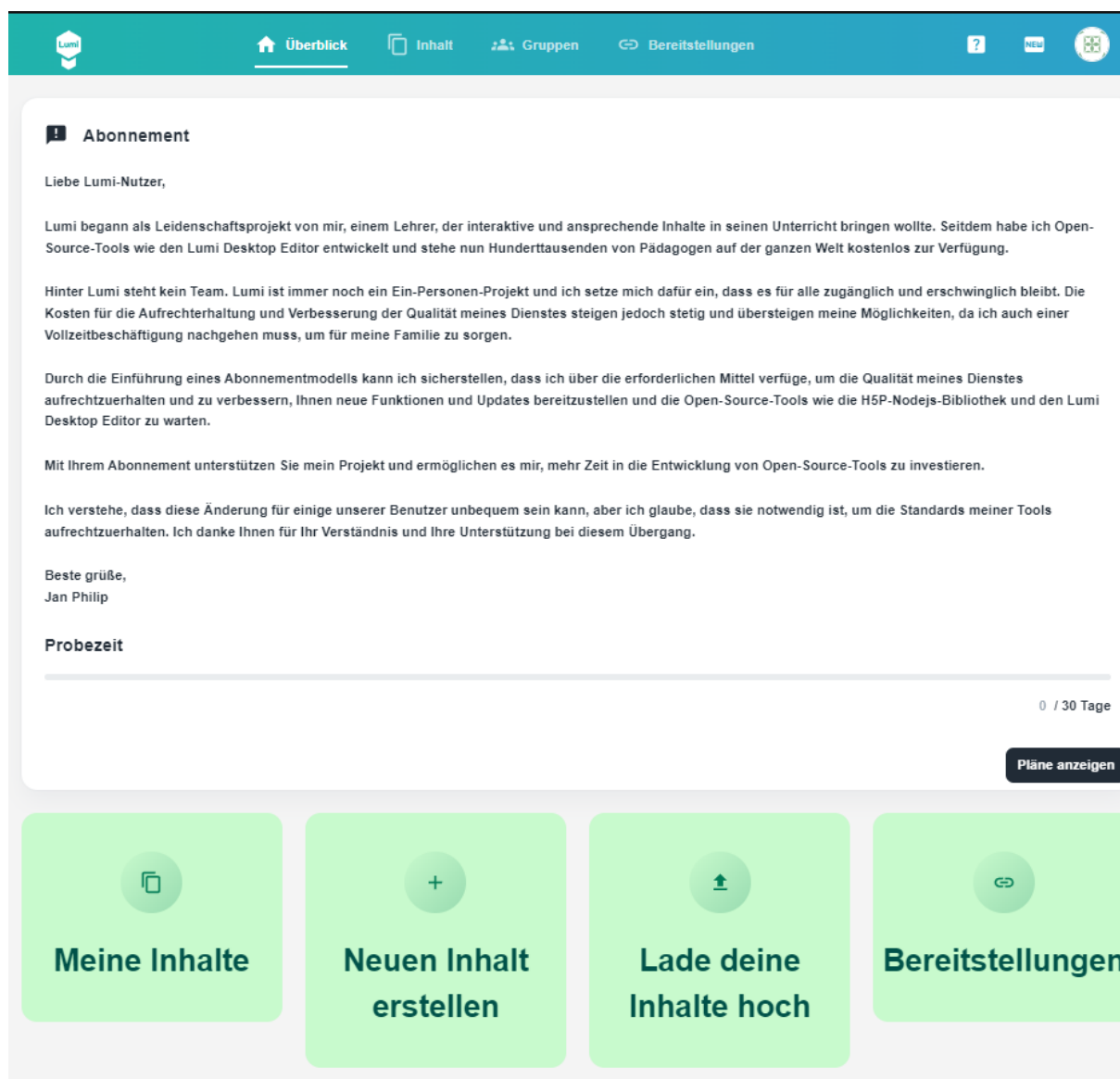


Figure 1: Lumi Dashboard

## 4. Create new content

Selecting a new piece of content

You'll find the Create new content button in the dashboard. Click on it to start the creation process.

1. You'll see a list of content types that offer different interactive features. These include multiple-choice questions, drag-and-drop assignments, memory games, and many other options.
2. For this tutorial, we'll select the **Multiple-Choice** content type.

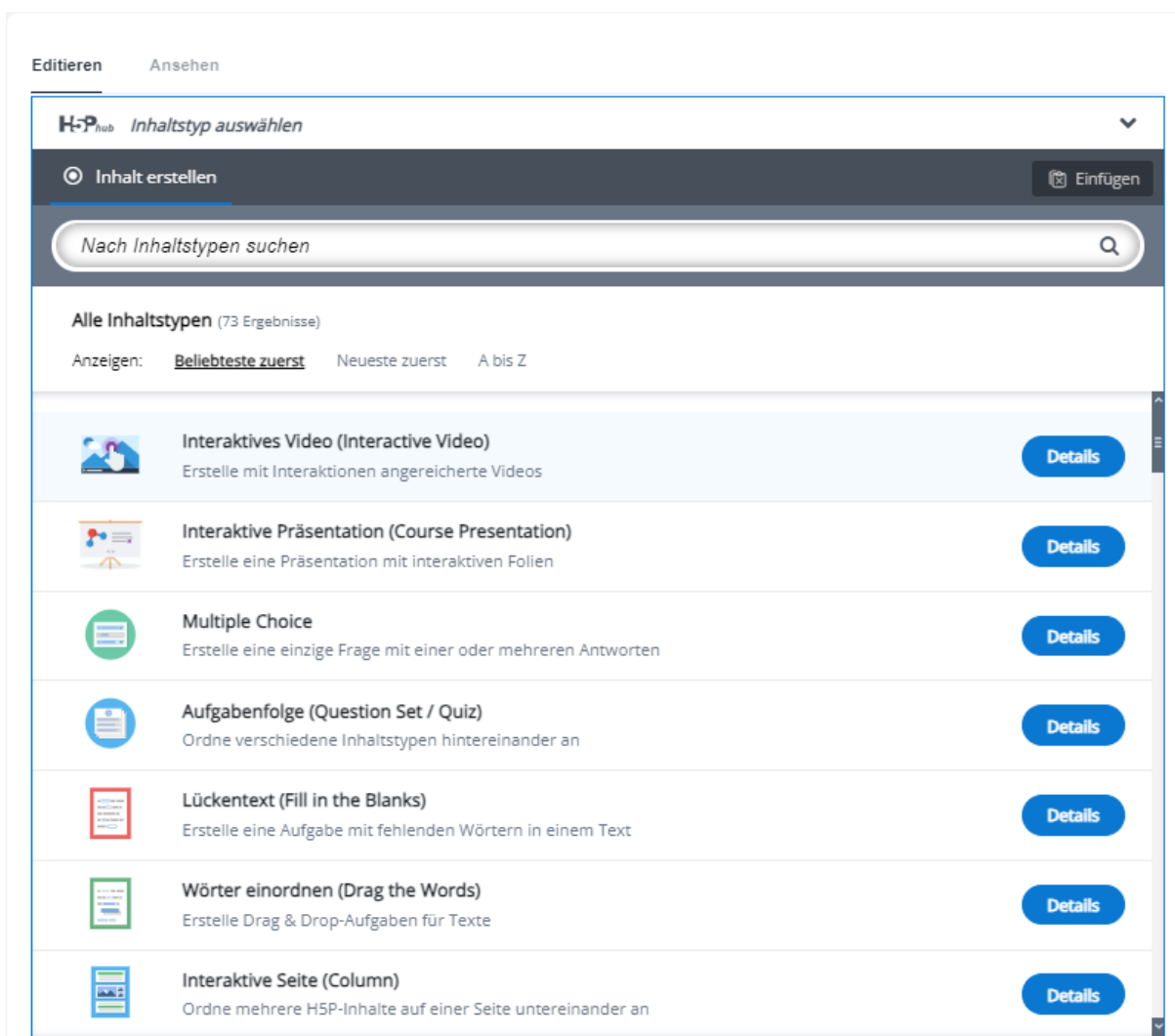


Figure 2: Lumi's H5P content library for selecting the various content types

### Introduction to the H5P content library

The H5P content library offers a variety of learning formats that are easy to access and edit. All content types make it possible to create interactive learning experiences. Even if you have no experience with H5P, you can get started quickly with easy-to-use tools and clear instructions.

## 5. Organisation of the content

### Title and metadata

After you have selected the content type, you will be taken to a user-friendly editor that allows you to design the content.

1. **Enter title:** Enter a meaningful title that briefly describes the content.
2. **Fill in metadata:** Add relevant metadata, such as the author's name and license information. This facilitates further use and protects your copyrights.

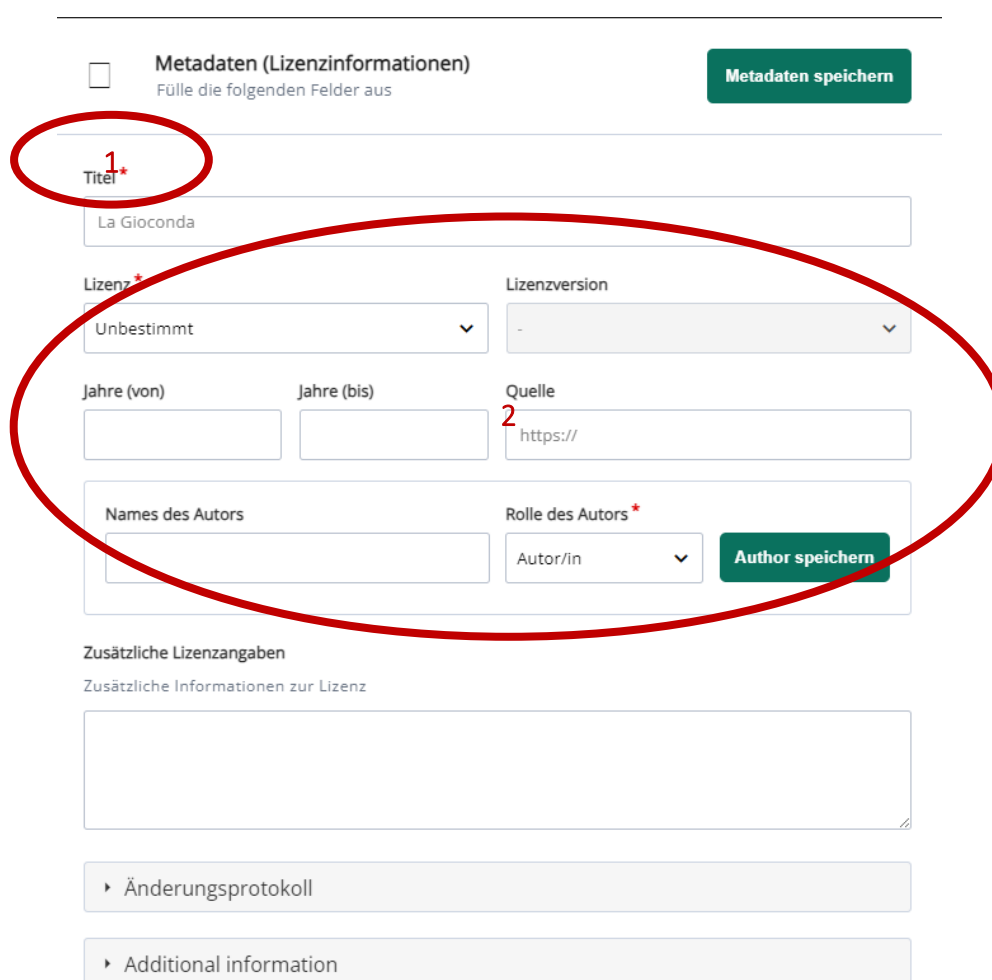


Figure 3: Content design for title and metadata editing

## Creating the question

1. Formulate your **question** (e.g. 'Is this a helpful tool?').
2. Enter the **possible answers** (e.g. 'Yes' and 'No').
3. Mark the **correct answer**.

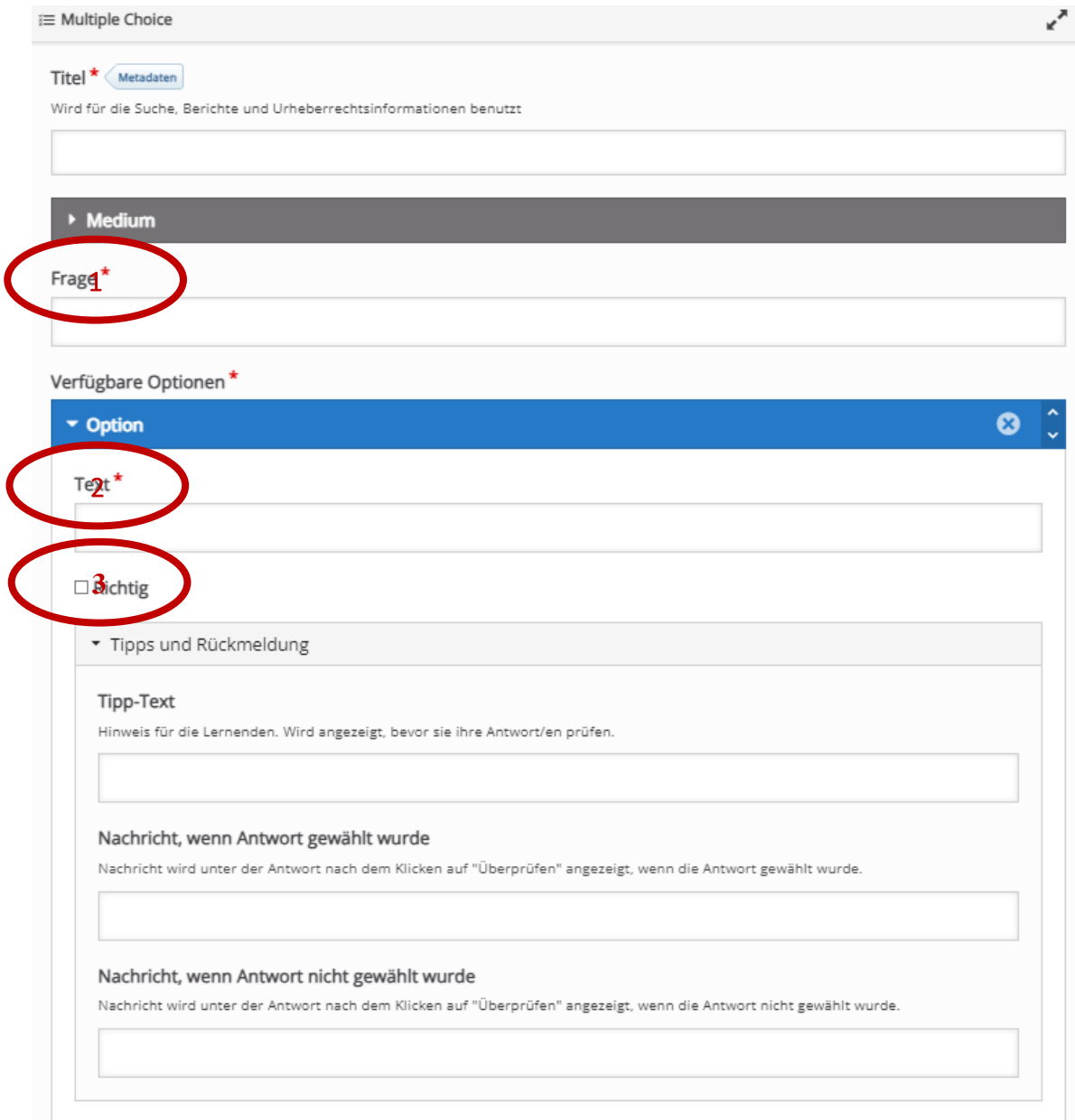


Figure 4: Content design for title and metadata editing

## 6. Saving the content

After you have designed the content, click on **Save**. This saves the content, but does not make it accessible to others.

The screenshot shows the 'Test' editor interface in Lumi. At the top right, there are four buttons: 'Export', 'Download', 'Löschen' (Delete), and 'Speichern' (Save). The 'Speichern' button is highlighted with a red rectangular box. Below the buttons, the editor area is visible, showing a 'Multiple Choice' question type. The 'Titel' (Title) field contains 'Multiple Choice Test'. The 'Frage' (Question) field also contains 'Multiple Choice Test'. Under 'Verfügbare Optionen' (Available Options), there is a section for 'Multiple Choice Test' with a 'Text' field containing 'Multiple Choice Test'. The 'Richtig' (Correct) checkbox is checked. At the bottom, there is a 'Tipps und Rückmeldung' (Tips and Feedback) section.

Figure 5: Saving content in Lumi

## 7. Share the content

Creating a link

To share the content, select the **Sharing** option.

1. Click on Share Content
2. Enter a **name** for the link to easily find it again later (e.g. 'Multiple Choice Test').
3. Consider which **sharing options** you would like to offer:
  - Should the content be downloadable or embeddable?
  - Would you like the license information to be displayed?
  - Do you want to include a reference to H5P?

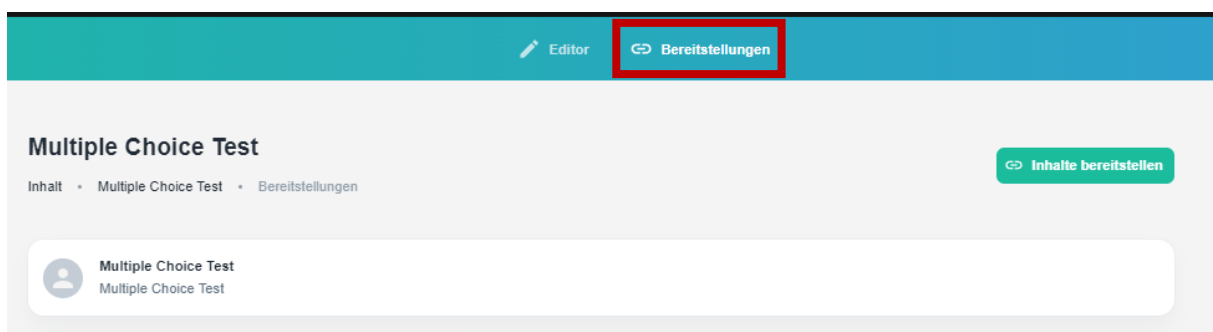


Figure 6: Sharing content



## 8. Generation and release of the link

1. Click **Save** after you have set the sharing settings.
2. A **link** is generated that you can copy and share.

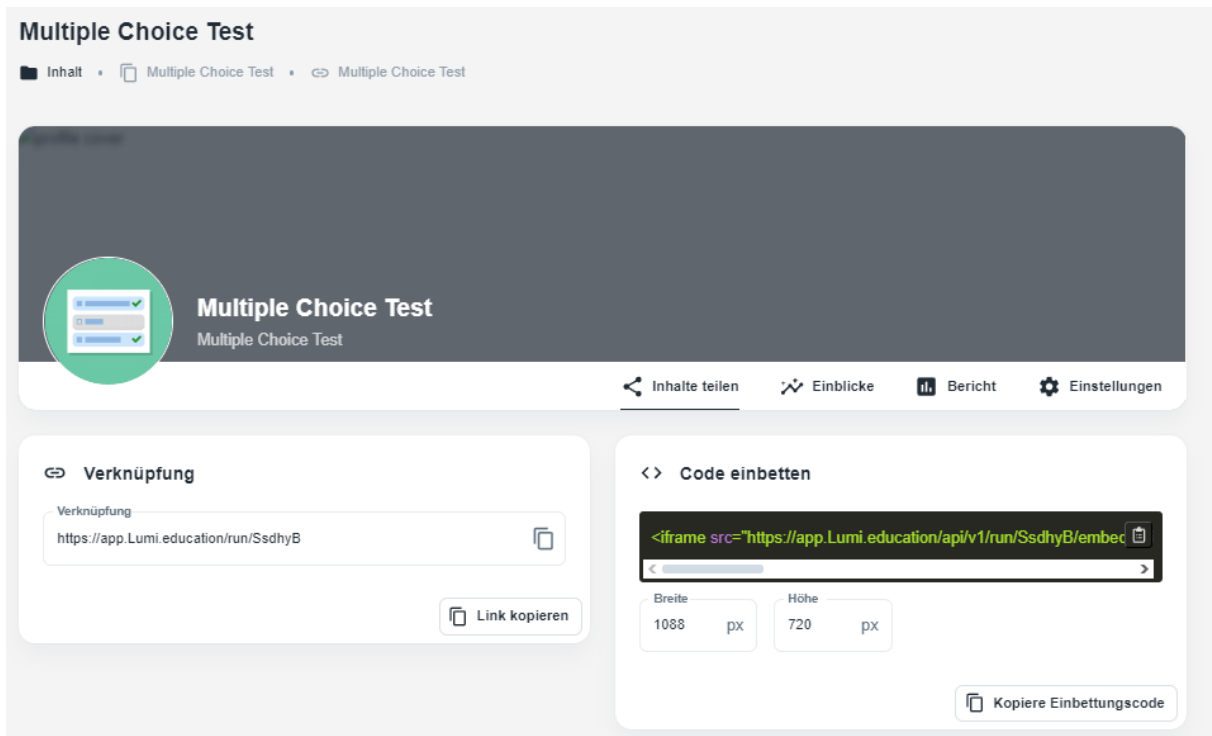


Figure 7: Generating and sharing the link for the links

## 9. Use of content

Others can use the link you generate without registering with Lumi. This flexibility allows you to distribute content quickly and easily.

Lumi makes it easy to create and share interactive learning content. With its intuitive user interface and H5P support, the platform offers various options for designing digital content. The flexibility of sharing allows you to make content usable for teaching and public exchange.

We recommend that you familiarise yourself with the different content types in Lumi to exploit its full potential for didactic purposes. For more information, visit the official [Lumi website](https://lumi.education).

## 10. Instructions: Point-and-click navigation using the example of the 'Professor IM' escape room

Download the ZIP file provided ([Lumi\\_escaperoom.zip](#)) to use the escape room and unzip it on your computer. The escape room can be played by opening the file index.html in the browser. In this example, the escape room 'Professor IM' was created using Lumi. While the task types are listed in the document 'Collection of Task Types.pdf,' this section discusses the structure of the point-and-click adventure-style navigation using 'Professor IM' as an example. The escape room is available for download and may be reused and adapted.

The escape room has four main themes (the Professor's office, kitchen, garden, and library). About 12 scenes are created using these themes, and the escape room begins and ends in the Professor's office. Some scenes are created on Lumi using the 'Image Hotspots' function, which provides information about the escape room's story using visible hotspots in the scene (see 'i' symbol in Figure 1). Other scenes are created using the 'Find Multiple Hotspots' function, where quests and clues are hidden as hotspots in the scenes to add an element of surprise and challenge to the escape room experience. For example, after clicking on the calculator on the shelf, the button for clue 1 appears (see Figure 2). When the correct hotspot is clicked, the corresponding task or clue link appears on the screen.

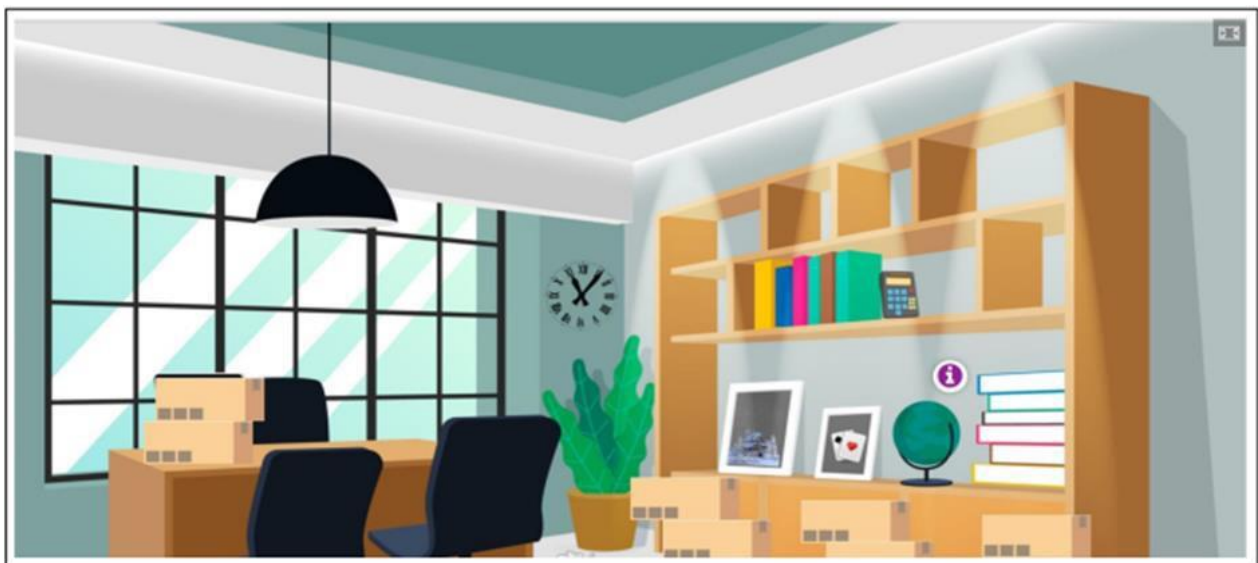


Figure 8: Visible 'hotspot' as an info message

After completing each task in a scene, the user receives a password. To prevent the player from skipping quests, each scene is associated with a password-protected 'Next' button. The password is a combination of numbers obtained by completing all the quests in the respective scene.

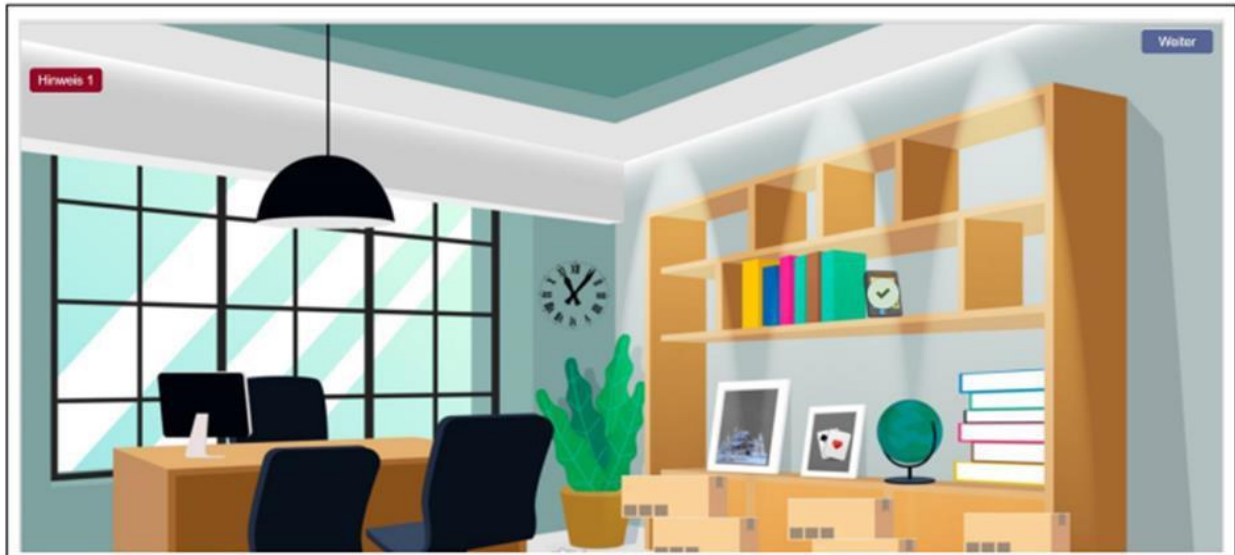


Figure 9: Hidden 'hotspot' on the calculator that makes the button visible on the first hint

## 11. Do I need programming knowledge?

No, you don't need programming knowledge to work with Lumi. The app provides a user-friendly interface that allows the creation of escape rooms and other learning materials without coding. The pre-built functions and templates cover most needs. The code shown in Figures 3, 4, and 5 is added to the index.html file generated by Lumi for the respective scene to create the password-protected 'Next' button. The code examples below are relevant for those who want to integrate additional customizations or special features. For advanced users who have programming knowledge or want to learn, Lumi offers the flexibility to change the front-end code, for example, by creating password-protected 'Next' buttons or custom visual effects.

While you can work without programming, the code examples allow more experienced users to customize and expand Lumi beyond the standard functions. This option is handy if there are special requirements for the design or functionality of the escape room. Figure 13 shows the field in which the participant must enter the password to continue in the game. The HTML code links to the next screen after the correct password has been entered by clicking the button. The JavaScript code is used to check the entered password.

```

/* Button used to open the contact form & move to next page */
.open-button {
  background-color: #586697;
  color: #fff;
  text-align: center;
  width: 75px;
  border: solid 1px #efefef;
  border-radius: 5px;
  cursor: pointer;
  z-index: 2;
  opacity: 1.0;
  font-size: 13px;
  padding: 5px;
  position: absolute;
  top: 30px;
  right: 30px;
}

/* The popup form - hidden by default */
.form-popup {
  height: 80%;
  width: 60%;
  margin: 0 auto;
  position: absolute;
  top: 50%;
  left: 50%;
  transform: translate(-50%, -50%);
  z-index: 10;
  display: none;
  border: 5px solid #cccccc;
  border-radius: 10px;
  text-align: center;
  vertical-align: middle;
}

/* Add styles to the form container */
.form-container {
  max-width: 100%;
  max-height: 100%;
  padding: 10px;
  background-color: white;
  opacity: 1.0;
}

/* Input fields */
.form-container input[type=text], .form-container input[type=password] {
  width: 50%;
  padding: 15px;
  margin: 5px 0 22px 0;
  border: none;
  background: #f1f1f1;
}

/* When the inputs get focus, do something */
.form-container input[type=text]:focus, .form-container input[type=password]:focus {
  background-color: #ddd;
  outline: none;
}

/* Set a style for the submit/login button */
.form-container .submit {
  background-color: #4CAF50;
  color: white;
  border: none;
  cursor: pointer;
  opacity: 0.8;
}

/* cancel button */
.form-container .cancel {
  background-color: #4CAF50;
  color: white;
  border: none;
  cursor: pointer;
  opacity: 0.8;
}

/* Add some hover effects to buttons */
.form-container .action_btn:hover, .open-button:hover {
  opacity: 1;
}

/*to make submit and cancel buttons appear side by side */
.buttons {
  width: 200px;
  margin: 0 auto;
  display: inline-block;
}

.action_btn {
  padding: 16px 20px;
  width: 200px;
  margin: 0 auto;
  display: inline-block;
}

```

Figure 10: Changes to the CSS code to create the password-protected 'Next' button

```
<div class="form-popup" id="myForm">
  <form id="form_submit" class="form-container" method="get" action="tv1/index.html" target="_self">
    <label for="psw" style="display: flex; justify-content: center;"><b>Passwort (in der Reihenfolge der Quests)</b></label>
    <input type="password" id="myInput" placeholder="Passwort eingeben" name="psw" required>
    <input type="checkbox" id="checkboxid" onclick="myFunction()">Passwort anzeigen
    <div class="buttons">
      <div class="action_btn">
        <button type="submit" class="action_btn submit" onclick="return validate(psw.value)" value="submit">Eingabe</button>
        <button type="button" class="action_btn cancel" onclick="closeForm()">Schließen</button>
      </div>
    </div>
  </form>
</div>
```

Figure 11: Modifications to the HTML code for creating the password-protected 'Next' button

```
<script language="javascript">

function openForm() {
  document.getElementById("myForm").style.display = "table-cell";
  document.getElementById("main").style.filter = "grayscale(1) blur(2px)" ;
}

function closeForm() {
  document.getElementById('myInput').value = "";
  document.getElementById("checkboxid").checked = false;
  document.getElementById("myForm").style.display = "none";
  document.getElementById("main").style.filter = "grayscale(0) blur(0)" ;
}

function myFunction() {
  var x = document.getElementById("myInput");
  if (x.type === "password") {
    x.type = "text";
  }
  else {
    x.type = "password";
  }
}

function validate(text1)
{
  if (text1=="2") {
    document.getElementById("form_submit").submit();
  }
  else
  {
    alert("Incorrect password.Try again");
    document.getElementById('myInput').value = "";
    return false;
  }
}

/* code changes..end*/
</script>
```

Figure 12: Changes to the JavaScript code to create the password-protected 'Next' button





Figure 13: The input field that opens when you click on the 'Next' button

Figure 14 shows the code used to fade in the quest and hint buttons after clicking on the corresponding hotspot.

**CSS:**

```
.showbutton
{
  display: block !important;
}

.hidebutton
{
  display: none;
  background-color: #950826;
  color: #fff;
  text-align: center;
  width: 75px;
  border: solid 1px #efefef;
  border-radius: 5px;
  cursor: pointer;
  z-index: 2;
  opacity: 1.0;
  font-size: 13px;
  padding: 5px;
  position: absolute;
  top: 30px;
  left: 30px;
}

.showbutton2
{
  display: block !important;
}
```

**JavaScript:**

```
var x1 = document.getElementById("quest_btn");
var x2 = document.getElementById("hint_btn");

if (this.correctHotspotFeedback.length == 1) {
  if (this.correctHotspotFeedback[0].percentagePosX < 65) {
    x1.classList.add("showbutton")
    x2.classList.add("hidebutton2")
  }
  else if (this.correctHotspotFeedback[0].percentagePosX > 65) {
    x2.classList.add("showbutton2")
    x1.classList.add("hidebutton")
  }
}
else {
  x1.classList.add("hidebutton")
  x2.classList.add("hidebutton2")
}
```

**HTML:**

```
<a href = "q1/index.html" target="_blank">
  <button id="quest_btn" class="hidebutton">Quest 1</button>
</a>

<a href = "h1/index.html" target="_blank">
  <button id="hint_btn" class="hidebutton2">Hinweis 1</button>
</a>
```

Figure 14: The front-end code has been modified to display the quest and hint buttons when the correct hidden hotspot is clicked.

Hints for the corresponding tasks ('quests') are given when solving the optional Hint puzzles. Hints can be provided with the Lumi function as feedback text or an image. An example of the code for outputting an image is shown in Figure 15.

```
"<a href="hint4.png" target="_blank"><button target="_blank" style="background:#586697;color:#fff; border:solid 2px #efefef;border-radius:5px;text-align: center;font-size:15px;"><strong>Hinweis 4!</strong></button></a>"
```

Figure 15: Modifying the front-end code to output an image file as a hint

## 12. Solutions – Escape Room „Professor IM“

### Scenario 1: Office

#### 1. Information about the watch (first page, not hidden)

*Narrative:* ‘It's strange, the professor should be in his office at this time of day to play the final game with us... The office looks even more chaotic than usual, even though he wanted to have it tidy by the end of the semester for his trip around the world! Maybe there's a clue to the professor's whereabouts...’

*Button:* Let us find out! (Leads to the second page)

#### 2. Information about the globe (second page, not hidden)

*Narration:* ‘There is a globe here with little flags worldwide. Could these be the destinations for his trip worldwide with his wife Sabine? Hmm... Is that a camera when there should be a screw on the mount? Maybe the camera will tell us what happened here. Where could the professor have his camera recordings?’

*Button:* Find the video recordings!

#### 3. Prof IM's message to students on hidden laptop (third page, hidden hotspot on laptop)

*Message from the professor:*

‘Hello stranger, if you are reading this message, you want to access the recordings from my camera in the office and don't know the password. There is a reason for this: privacy! If you want to view the recordings without me being present, you first have to find out my password! ‘



#### 4. Quest 1: Legal Forms Drag & Drop Puzzle (page 5)

*Task: Match each company form to its description:*

Rechtsformen	Information
AG	Die Eigentümer dieser Kapitalgesellschaft sind die Aktionäre
GmbH	Die Gründung dieser Gesellschaft erfordert ein festes Stammkapital von 25.000 Euro
UG	Bei dieser Gesellschaft muss zeitweise 25% des Gewinns in eine gesetzliche Rücklage fließen
KG	Bei dieser Gesellschaftsform existieren mindestens zwei Gesellschafter, die zudem verschiedene Funktionen erfüllen
OHG	Diese Personengesellschaft wird in der Rechtstellung als juristische Person betrachtet
GbR	Diese Personengesellschaft mit mindestens zwei Gesellschaftern ist nicht parteifähig
Einzelkaufmann	Diese Personengesellschaft benötigt nur einen Gesellschafter
GmbH & Co. KG	In dieser Mischform agiert eine Kapitalgesellschaft als Komplementär
KGaA	Diese Mischform setzt ein Stammkapital von mindestens 50.000 Euro voraus

Table 1: Legal forms Drag & Drop

#### Note 1: maths puzzle (page 5: hidden hotspot on the calculator)

*Text after solution: "OHG, GbR and sole traders are types of partnership."*

## 5. Quest 2: Note on the blueberry muffin recipe (page 7, Kitchen: Fill in the gaps)

Required words: sugar, milk, baking powder, vanilla sugar, etc.

Zutaten		
Für	12	Stück
250 g	Blaubeeren (frisch oder TK)	1. Frische Blaubeeren <u>waschen</u> und gut abtropfen lassen. Gefrorene Blaubeeren auftauen und dann gut abtropfen lassen, ohne dass sie kaputtgehen. Eine 12er-Muffinform mit Papierförmchen auslegen.
	etwas + 125 g Butter	2. 125 g Butter zerlassen. Mit dem Schneebesen den Zucker und Vanillezucker unter die heiße Butter rühren, dann <u>Eier</u> und Milch unterrühren.
135 g	Zucker	3. Mehl mit Backpulver und Salz vermengen und zu den flüssigen Zutaten geben. Ganz leicht vermischen und die Blaubeeren vorsichtig unterheben. Tipp für aufgetaute Beeren: Mit Mehl bestäuben, vorsichtig mischen und erst dann unterheben.
1/2 TL	Vanillezucker	4. Teig gleichmäßig auf die Muffinform verteilen. Muffins im vorgeheizten Backofen (E-Herd: 190 °C) ca. 18 Minuten backen und eine Garprobe machen. Dafür mit einem Holzspießchen in einen Muffin piksen. Bleibt der Spieß sauber, sind die Muffins fertig. Klebt noch ein bisschen Teig daran, zurück in den Ofen und ein paar Minuten länger backen.
2	Eier (Gr. M)	
125 ml	Milch	
350 g	Mehl	
2 TL	Backpulver	
1/4 TL	Salz	

Figure 16: Note for Quest 2

Text after solution:

"The OHG is considered a legal entity. In contrast, the GbR cannot be a party to a lawsuit."

### Note 3 (page 7): Sabine's puzzle

Puzzle: "I am bought for dinner – but never eaten. What am I?"

Answer: cutlery or crockery

After solution:

'Yes, you're right, you don't eat cutlery and crockery, but it is quite useful for eating. I found another note next to the question about the right lemonade: the weighting of the individual values must be considered and the actual evaluation is done using school grades (1 = very good; 6 = insufficient).'

## 6. Quest 3: Evaluating lemonades (page 7: in the lemon peel)

*Calculation of the expected values:*

	Zustandsraum $S_j$ und Eintrittswahrscheinlichkeiten $p(S_j)$			Erwartungswert
	Keine Kinder und keine Präferenz für süße Limo	Kinder, aber keine Präferenz für süße Limo	Kinder und Präferenz für süße Limo	
	0,4	0,3	0,3	
wenig süß	10	6	3	
mittelsüß	5	10	5	
süß	3	6	11	

Figure 17: Quest 3 task

The least sweet lemonade has the highest expected value of 6.7 and should, therefore, be chosen.

## 7. Quest 4: Garden Investment Puzzle (Tree Stump)

*Question: 'Given the series of payments (-100, 50, 66), what is the internal rate of return on this investment?'*

Solution: 10

### Clue 4: Flower Identification (Garden Screen)

*Solve the flower identification clue.*

- Rose:



- Gerberas:



- Sunflower:



- Peony:



- Tulip:



- Lilie:



- Myosote:



- Margerite:



## 8. Quest 6: Crossword procurement and production

1. Materials at a low level of processing that become an essential part of the products.
2. These materials are not directly incorporated into the products, but their regular use is necessary to operate machines.
3. These materials are also directly incorporated into the products, but they only make a minor contribution to the end product.
4. Mathematical representation of the efficient frontier.
5. The geometric locus of all efficient factor combinations that lead to the same yield.
6. The geometric locus of all factor combinations that lead to the same costs.
7. A group of production factors includes raw materials, semi-finished products, and finished products.
8. This 'power' is often referred to in the literature as 'human factors'.

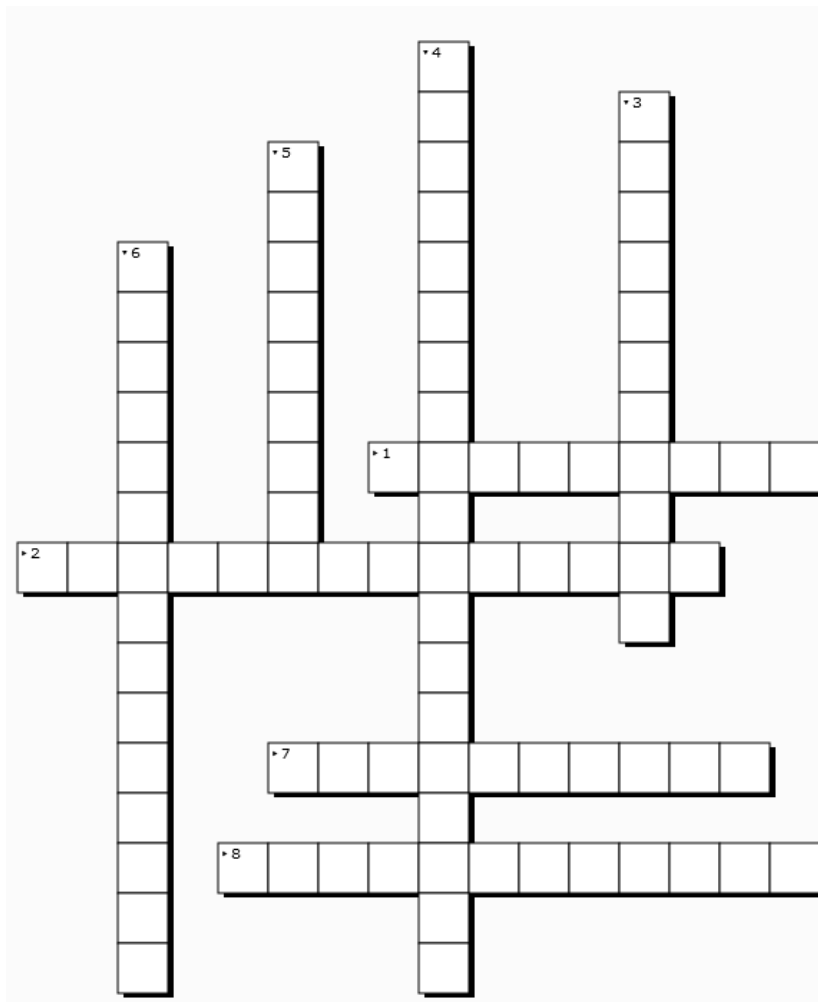


Figure 18: Crossword puzzle Quest 6

Solution (words in German):

1. Rohstoffe 2. Betriebsstoffe 3. Hilfsstoffe 4. Produktionsfunktion 5. Isoquante
6. Isokostengerade 7. Werkstoffe 8. Arbeitskraft

## 9. Quest 7: Tasks in the library (fireplace)

*Drag-and-drop puzzle with finance and economics terms.*

### Note 7: Matching images on the fire extinguisher

*Note: 'Financing theory looks at the procurement of monetary or financial resources, while investment theory looks at how they are used.'*

Solution:

- Internal rate of return: the interest rate at which the net present value of a series of payments is zero.
- Costing interest rate: this interest rate is based on the opportunity principle.
- The net present value method combines the net present value, cash flow, and costing interest rate variables.
- Finance theory looks at the procurement of monetary or financial resources.
- Investment theory: This looks at the expenditure of financial resources.
- Liquidity: This technical term describes the ability to meet your payment obligations at any time.
- Flow of goods: This real economic factor is countered by a flow of funds.

## 10. Quest 8: Lamp puzzle in the library

*A memory game with terms from the BCG matrix and market forms.*

<u>Term</u>	<u>Description</u>
Questionmarks	Selektive Ausbaustrategie
Stars	Investitions- und Wachstumsstrategie
Poor Dogs	Desinvestitionsstrategie
Cash Cows	Abschöpfungsstrategie
Monopol	Ein Anbieter
Oligopol	Wenige Anbieter
Polypol	Viele Anbieter

## 11. Quest 9: Arithmetic problem in the library (book)

*Question: 'How often should the dealer order cameras to minimize costs?'*

Solution: 30

## 12. Quest 10: Break-Even calculation

*Problem: Calculate how many waffle irons the company has to sell in order to break even.*

Solution: 1400



### 13. Quest 11: Final question (Single Choice Fragen)

1. Welche Phase gehört nicht zum Unternehmenslebenszyklus-Kreislaufmodell?
  - a. Konsolidierungsphase
  - b. **Kontraktionsphase**
  - c. Expansionsphase
2. Welche Gruppe gehört nicht zur Innovations-Adoptions-Kurve nach Rogers?
  - a. Späte Mehrheit
  - b. Innovatoren
  - c. **Frühe Nachzügler**
3. Welche Methode ist den dynamischen Investitionsrechenverfahren zuzuordnen?
  - a. Gewinnvergleichsrechnung
  - b. Rentabilitätsvergleichsrechnung
  - c. **Kapitalwertmethode**
4. Was lässt sich aus dem „Gefangenendilemma“ der Spieltheorie lernen?
  - a. **Individuell rationale Entscheidungen können zu kollektiv schlechteren Ergebnissen führen.**
  - b. Individuell rationale Entscheidungen sind immer richtig
  - c. Rationale Entscheidungen sind über lange Spielphasen hinweg die besseren Entscheidungen.

14. Final scene: office with video of the professor  
*Quiz with questions on the corporate life cycle, the innovation adoption curve and decision theories.*