

## HandsOn-Website Kniffelix.de

German website that translates partially when used on devices with foreign IP addresses

KNIFFELIX Rätselthemen - Berufs-/Studienorientierung Für Pädagogen - Neuigkeiten Über Kniffelix

Solve tricky everyday puzzles!

STEM-Edutainment Website

Science & Research for all Ages 8 - 99+

Free Hands-On Offer TUHH Hamburg University of Technology

### Topics for Beginners (Ages 8 - 99+):



**PIZZA**  
yeast, enzymes, biocatalysis



**SOIL**  
types of soil, water retention



**AIRPLANES**  
center of gravity & flight behavior



**KETCHUP**  
flow behavior, Non-Newtonian fluids



**HELICOPTERS**  
2D and 3D drawing, spatial drawing skills



**WINGS**  
aerodynamic drag, airflows & currents

### More Advanced Topics (ages 14 - 99+):



**AEROGELS**  
the lightest solids in the world (funded by BMBF)



**CHROMATOGRAPHY & HPLC**  
basic to advanced (funded by Merck)

## Project Partners

Kniffelix is a product of KinderForscher at the TUHH. We are financed by project orders, cooperations, prize money, donations, sponsoring and supporters

If you are interested in a possible cooperation or want to support the project, feel free to contact us!

### Sponsors of individual topics:



Chromatography  
**MERCK**



Award 2022:

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# KNIFFELIX

# RESEARCH FOR SOCIETY



[www.kniffelix.de](http://www.kniffelix.de)

FOR ALL  
FROM 8 - 99+ YEARS



**TUHH**  
Hamburg  
University of  
Technology

# How Research is Presented

- From everyday life to research & STEM-careers
- With experiments from everyday material
- Digitally accompanied
- Do it anywhere



## Topic Structure:

<b>RELEVANCE</b>	• How am I familiar with the topic? (Relevance to everyday life)
<b>KNOWLEDGE</b>	• What is being researched? • Explanation of science
<b>APPLICATIONS</b>	• Why are they relevant? • How will they change my life?
<b>PROFESSIONS</b>	• Apprenticeships / Studies / Careers • Interviews with employees

## For Whom? (depending on topic)

- Individuals from 8 - 99+ years old
- Pupils for at home or in school
- School classes, learning groups & clubs: Get your own everyday material or, in Hamburg, rent experiment material boxes from [www.kinderforscher.de](http://www.kinderforscher.de)
- Students, interns, new department members or cooperation partners

# Example: Pizza & Enzymes



## From yeast dough to experiments:

Introductory videos & kitchen experiments



## Quizzes, explanations & insight:

<p><b>Enzymes in our Daily Life</b></p>	<p><b>Enzymes in Research</b></p>	<p><b>Career Interviews: Working with Enzymes</b></p>
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Including interviews with members of the TUHH Institute of Technical Biocatalysis [www.technical-biocatalysis.com](http://www.technical-biocatalysis.com)

## Advanced material on enzymes:

- Additional quantitative yeast test series on enzyme and substrate concentration, temperature influence, different types of sugars or solvents, and comparison of fresh or dry yeast
- Temperature optimum, ecological potency, enzymes as biocatalysts, reaction rate rule and Michaelis-Menten kinetics

# Example: Aerogels

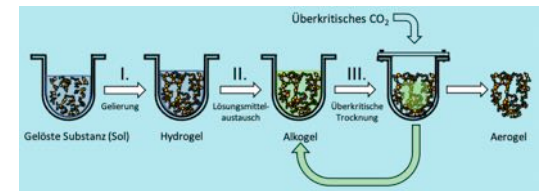


## What are aerogels?

The lightest solids in the world: highly porous

Photos, quizzes & interactive videos

## How are aerogels produced?



## Applications, interviews & careers:



Research at the TUHH Institute of Thermal Separation Processes [www.tuhh.de/v8/](http://www.tuhh.de/v8/)

**Career Interviews: Working with Aerogels**