



RENEWABLE ENERGY

An introduction
to design thinking

GDAŃSK, 2020



FOR GREEN TECH FUTURE!

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Author



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Service designer, researcher, moderator, business analyst.

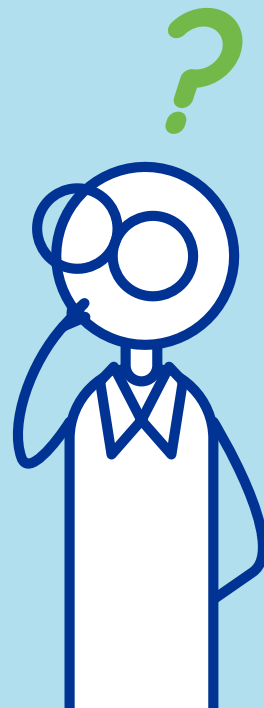
She is looking for solutions that allow to achieve the goals of the organization and respond to the real needs of users.

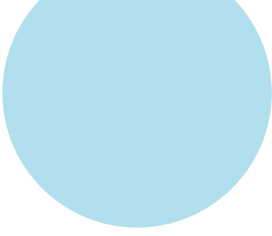
Using the service design approach, she designed solutions for corporations, SMEs, public institutions and NGOs. The service design approach is also used to collect requirements for IT systems. Experienced moderator of processes and workshops based on service design and design thinking methodology.

Speaker at many conferences devoted to service design, including Element Talks, Experience Camp, World Usability Day, European Economic Forum.


What is DESIGN THINKING

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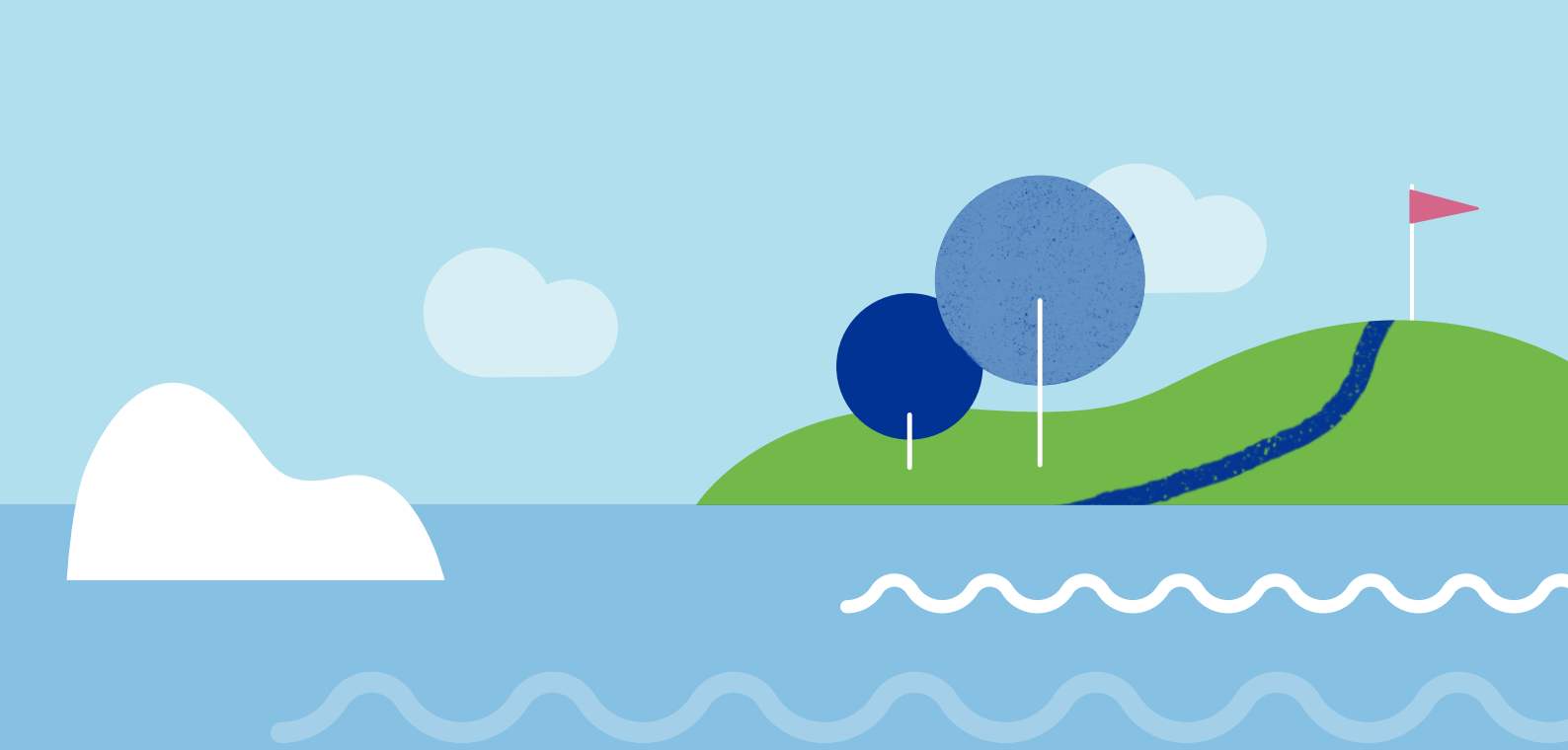
Design thinking is an approach that helps us to find a satisfying solution for **wicked** problems.



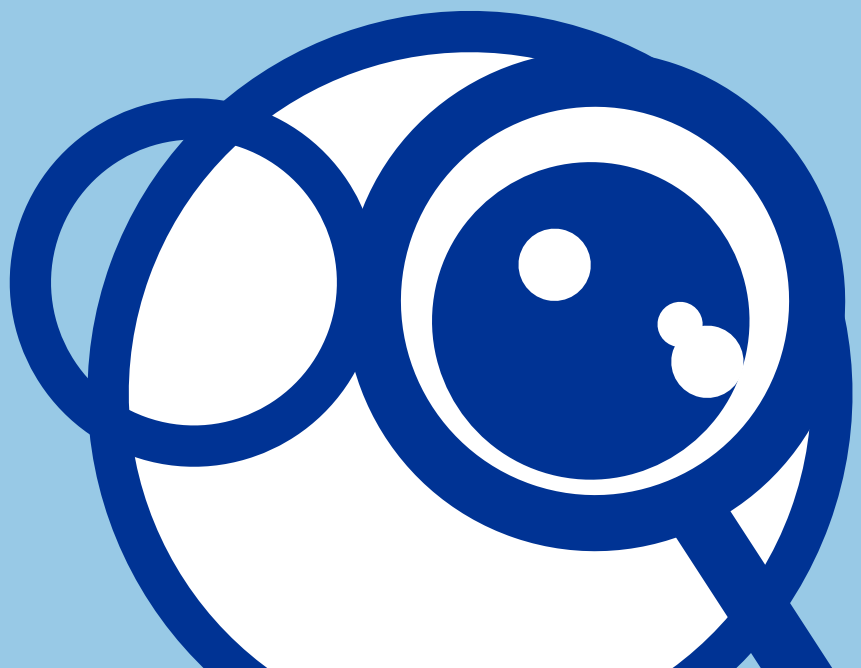
Wicked problems are the ones that:

- have many potential solutions
 - engage many stakeholders
 - are vague (we know that there is a problem, but we can't call it precisely)
- 

Design
thinking helps
us to look
for solutions
systematically
and support
us with
various tools.



Design is
as much about creation
as it is about exploration and analyzes.



The process is composed of five main stages:

EXPLORATION

1

LEARNING ABOUT THE CONTEXT, USERS. TRYING TO UNDERSTAND THE TOPIC DEEPLY WE WILL WORK ON

DEFINING THE DESIGN CHALLENGE

2

DECIDING WHAT EXACT PROBLEM WE NEED TO SOLVE TO HAVE AN IMPACT ON THE CURRENT SITUATION

IDEATION

3

GENERATING IDEAS THAT WILL SOLVE THE PROBLEM

PROTOTYPING

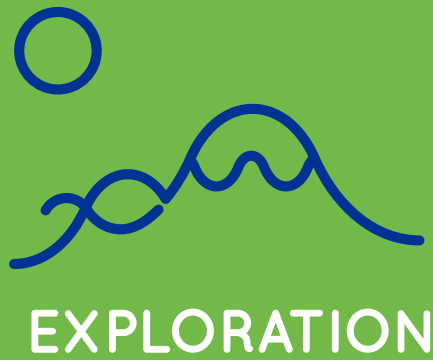
4

MAKING IDEAS TANGIBLE WITH LIMITED RESOURCES

TESTING

5

VALIDATING THE CONCEPTS WITH OTHERS



PROTOTYPING + TESTING



Design thinking is all about people, their needs, **expectations.** We try to discover them and find a way to answer them.

NOTE: IF YOU ALREADY HAVE A SOLUTION THEN YOU DON'T NEED TO GO THROUGH THE DESIGN THINKING PROCESS.

IT CAN BE HELPFUL IF THERE IS A CHANGE REQUIRED BUT YOU ARE STILL LOOKING FOR AN IDEA THAT WILL HELP YOU TO REACH IT.

DESIGN THINKING

in practice



DESIGN THINKING IS
ABOUT **DOING,**
EXPERIMENTING AND
EXPLORING. WE
SELECTED FOR YOU
SOME TOOLS THAT
WILL HELP YOU TO GO
THROUGH THE PROCESS
AND TAKE MOST
OUT OF IT.

NOTE: DON'T WORK ALONE

DESIGN THINKING IS A COLLABORATIVE ACTIVITY.
IT WORKS WHEN YOU HAVE PEOPLE WITH DIFFERENT
EXPERIENCES AND PASSIONS AROUND YOU. THINK
WHICH COLLEAGUES YOU CAN INVITE TO YOUR PROJECT.

USUALLY, PROJECT TEAMS HAVE FROM 4 TO **6**
MEMBERS.

DEFINING THE SCOPE

When you think about...

RENEWABLE ENERGY and design thinking, it starts to be clear that not all issues can be solved with this approach.

If for instance, you want to figure out how to deliver solar energy to your school, probably solar panels are the right answer. In such cases using design thinking won't help you.



THUS WE NEED TO DECIDE WHICH TOPICS RELATED TO RENEWABLE ENERGY IT MAY WORK.

FOR INSTANCE, YOU CAN TRY TO FIND AN ANSWER FOR SUCH QUESTIONS:

- > HOW TO RAISE AWARENESS IN YOUR SCHOOL?
- > HOW TO RAISE MONEY FOR YOUR SCHOOL/YOUTH CLUB TO BUY SOLAR PANELS?

ON THE OTHER HAND, YOU MAY BE INTERESTED IN CREATING AN INNOVATIVE PRODUCT OR SERVICE BASED ON RENEWABLE ENERGY (MAYBE A PORTABLE SOLAR PANEL TO CHARGE YOUR PHONE?)

ACTIVITY:

DISCUSS WITH ALL TEAM MEMBERS WHAT YOU WOULD LIKE TO WORK ON.

ACTIVITY:

At the beginning of your adventure with design, thinking prepare two MOOD BOARDS: one that presents the current situation and other that depicts how your project will change it. You can use a set of pictures we have prepared for you. To fully express the story you want to share use also old magazines, draw, write important words.



DESIGNING A NEW WORLD

DESIGNING THE CHANGE STARTS WITH THE DREAM OF HOW THE WORLD SHOULD LOOK LIKE. BEFORE WE BEGIN TO THINK ABOUT ACTIVITIES, WE NEED TO DEFINE HOW WE WANT TO CHANGE THE CURRENT SITUATION. THIS PERSPECTIVE HELPS TO COME WITH MORE EXCITING IDEAS AND OPEN OUR MINDS FOR NEW SOLUTIONS.

It is usually
tough to answer
the question of
what we want
to achieve.

TO MAKE IT EASIER YOU CAN USE
A MOOD BOARD TECHNIQUE.

MOOD BOARD

MOODBOARD
IS A COLLAGE OF
PICTURES AND WORDS
THAT IN A VISUAL WAY
PRESENTS HOW WE SEE
THE SITUATION

TAKE YOUR TIME
TO MAKE THEM
AND ENJOY
THE PROCESS.

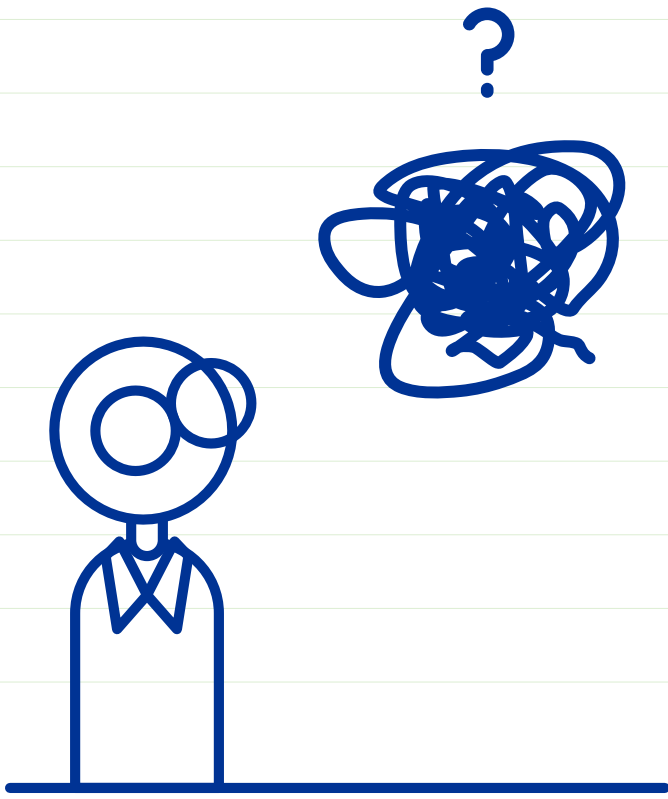
change

ideas

Working on them
TOGETHER with
your friends
is a great way to
have meaningful
discussions
about the topic.



WHEN YOUR MOOD BOARDS ARE READY, LOOK AT THEM AND WRITE
DOWN WHAT SHOULD CHANGE TO MOVE FROM AS-IS (CURRENT
SITUATION) TO TO-BE (DESIRED SITUATION)? YOU CAN USE OUR
CARD AN INSPIRATION (1). CHOOSE ONE THAT YOU THINK IS THE
MOST IMPORTANT.



**BEFORE
SOLVING
THE PROBLEM,
YOU NEED TO
LEARN ABOUT IT.**



DISCOVERY

BEFORE SOLVING THE PROBLEM,
YOU NEED TO LEARN ABOUT IT.

WE NEED TO IMMERSE IN THE TOPIC, UNDERSTAND DIFFERENT ASPECTS OF IT. OUR DISCOVERY PHASE WILL BE COMPOSED OF THREE MAIN STAGES:

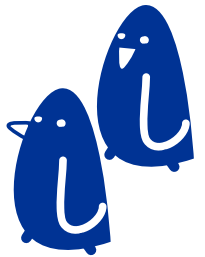
- GENERAL INFORMATION
- SURROUNDING
- USERS

General information:

Let's start with the
big picture of the topic.
We need to learn a bit more
about renewable energy.

ACTIVITY:

EACH MEMBER OF YOUR GROUP SHOULD FIND AND READ SOME ARTICLES ABOUT THE SUBJECT. TRY TO FIND SOME CASE STUDIES THAT PRESENT HOW DIFFERENT COMMUNITIES, INSTITUTIONS WERE IMPLEMENTING CHANGES RELATED TO RENEWABLE ENERGY. WRITE DOWN ESSENTIAL AND INTERESTING FACTS. SHARE YOUR NOTES WITH OTHER MEMBERS OF YOUR TEAM. FILL IN THE POSTER NOT TO LOSE ANY CRITICAL PIECE OF INFORMATION.



SURROUNDING

When you are ready
you can move to the
next step: learning
about the surrounding.

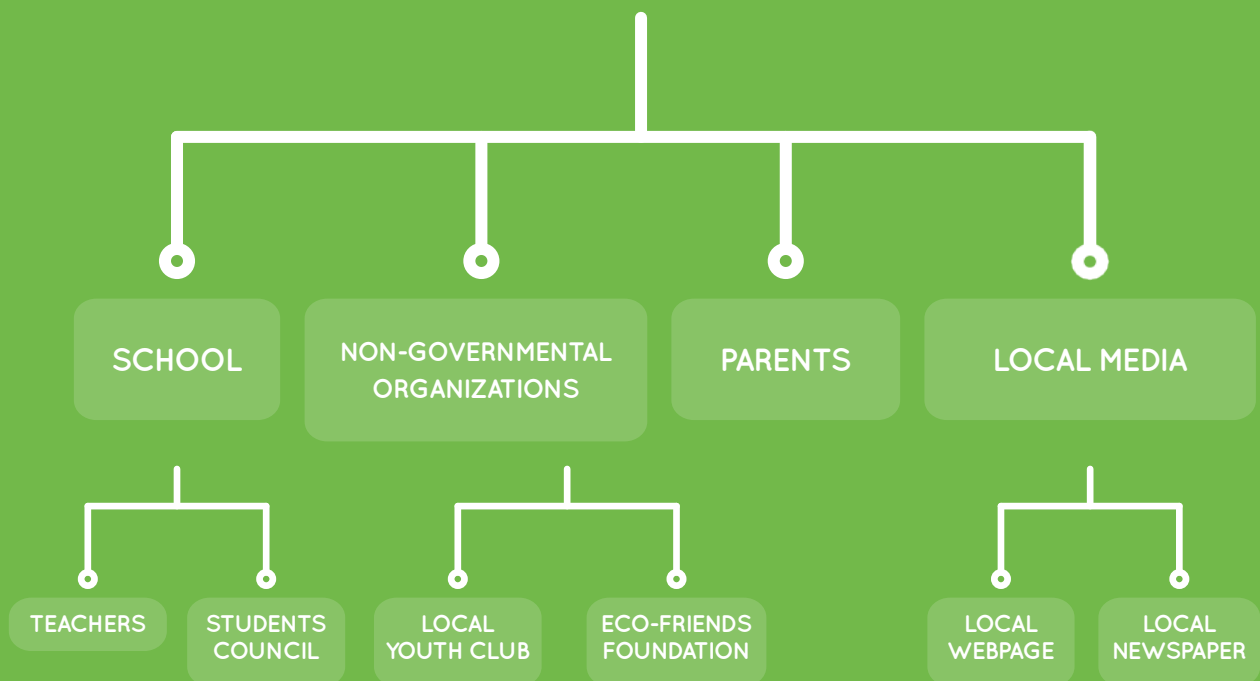
If you have decided for instance
to make the change in your school,
you should collect information how
it works now when it goes about
renewable energy, what's
the surrounding.

Are there any institutions, companies, etc. that may
have an impact on our project? If you would work
on the gadget for travelers, explore what is already
available on the market.

ACTIVITY:

PREPARE THE MIND MAP THAT PRESENTS WHO IS / MAY BE RELATED
TO THE PROJECT. YOU CAN FIND AN EXAMPLE BELOW.

BUILDING AWARENESS ABOUT RENEWABLE ENERGY



USERS

Last but not
least, **think**
about **people**



WHO WILL BENEFIT FROM YOUR
SOLUTION? FOR WHOM YOU
ARE DESIGNING IT?

When we create solutions, we need to define what problems we solve and who has them. Even if you think that everyone can benefit out of your answer, decide for whom you will dedicate it in the first place.

Understanding users are crucial
for our process.

TOPIC

RAISING AWARENESS
ABOUT RENEWABLE
ENERGY IN THE SCHOOL

CREATING PORTABLE
SOLAR PANELS

USERS

school pupils who are engaged
in environmental topics
school pupils who are not involved
in environmental topics
teachers

young people who spend the whole
time outside their homes
travelers who don't have access
to electricity during their journeys

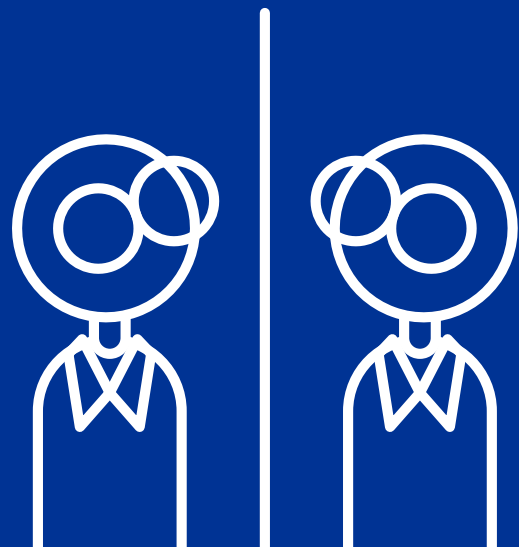
ACTIVITY:

PREPARE THE PERSONA USING THE PREPARED CANVAS.
PERSONA IS A WAY TO PRESENT AND COMMUNICATE TO OTHERS
EASILY FOR WHOM YOU ARE DESIGNING FOR.

After you have prepared the person, there is a tricky part. While filling in the canvas, you have written down your impressions. Now you should meet with people who fit in the profile.

MEET WITH PEOPLE WHO FIT IN
THE PROFILE: E.G. TEACHERS FROM
YOUR SCHOOL, STUDENTS WHO
ARE ENGAGED IN ENVIRONMENTAL
TOPICS, STUDENTS NOT CARING
ABOUT ENVIRONMENTAL ISSUES.

DURING THE MEETINGS, YOU
SHOULD LEARN WHAT THEY THINK
ABOUT THE PROBLEM IF THEY CARE
(OR DON'T) WHY IT IS SO? HOW
DO THEY SEE THE SITUATION?



Before the meeting prepares the list of a few questions, you want to ask. Don't ask if, but rather: WHY, HOW.

Give them a chance to tell you their story...

You should meet with around six people who fit into your profile.

6x



NOTE:

DON'T EDUCATE OR CORRECT ANYONE DURING YOUR MEETING, TRY TO UNDERSTAND.

THE INTERNET CAN ALSO BE A VALUABLE SOURCE OF INFORMATION ON OUR TOPIC. YOU CAN FIND GROUPS ON SOCIAL MEDIA, COMMENTS UNDER ARTICLES RELATED TO THE PROBLEM, CHECK WHAT PHOTOS PEOPLE PUBLISH ADDING HASHTAGS RELATED TO THE TOPIC. COLLECTING THIS DATA, YOU MAY LEARN ABOUT OTHERS POINT OF VIEW, LEARN WHAT WAKES PEOPLES EMOTIONS.

Very often we came with great ideas that don't solve any problems, and as a result, no one want to use them.

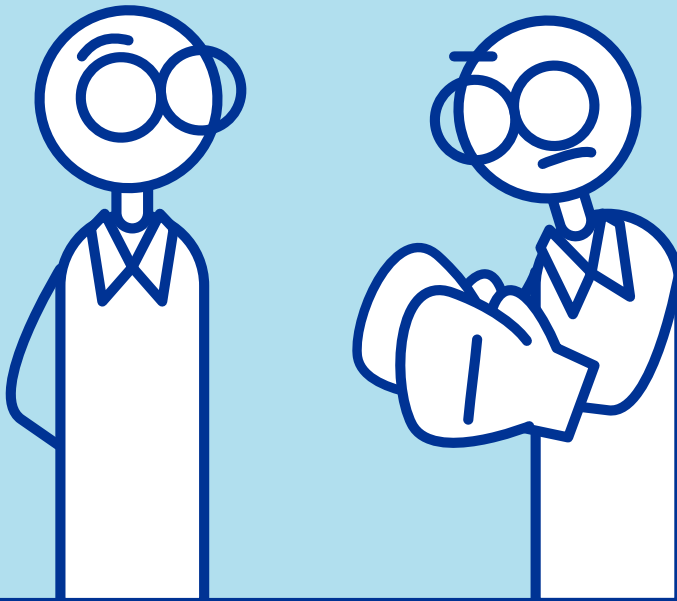
We want to avoid this situation. Thus we define the challenge after we have learned about our users' needs.

Defining

THE DESIGN CHALLENGE

THE DESIGN CHALLENGE IS USUALLY DEFINED IN THE FORM OF THE QUESTION:

How might we help (WHO)
in (WHAT), so that (EFFECT)?



WHO:

WRITE DOWN WHAT GROUPS YOUR PERSONA REPRESENTS

WHAT:

WHAT PROBLEM OF OUR PERSONA WE WANT TO SOLVE

EFFECT:

WHAT IS THE EXPECTED OUTCOME OF THE SOLUTION

EXAMPLE:

How might we help travelers, who have no access to the electricity during the trips in charging small electric devices so that they can stay in contact with the world and document their adventures.

ACTIVITY:

WRITE DOWN YOUR DESIGN CHALLENGE. KEEP IN MIND THAT THE HARDEST PART IS NOT TO MAKE THE CHALLENGE TOO WIDE EITHER TOO NARROW. IT NEEDS TO BE SPECIFIC, BUT WHEN YOU THINK ABOUT IT AT LEAST A FEW DIFFERENT IDEAS SHOULD COME TO YOUR MIND.

IDEATION

During the next stage of the process, you will have a chance to generate some ideas.

We will use two methods that will help you to find exciting solutions for your challenge.

Before you start, remember about fundamental rules of the ideation phase.

THERE ARE NO BAD IDEAS

WORK AS A TEAM
- INSPIRE EACH OTHER

DURING THE FIRST STAGE
OF THE PROCESS DO NOT
THINK IF IT'S PRACTICAL
AND IMPLEMENTABLE

HAVE FUN!

ACTIVITY:

FIRST ACTIVITY RULES ARE VERY SIMPLE. USE A4 PAPER. EACH MEMBER OF THE TEAM SHOULD WRITE AT THE HEADING YOUR DESIGN CHALLENGE. THEN WRITE DOWN THREE IDEAS THAT COME TO YOUR MIND...

Design challenge:

How to make children in our school more aware of renewable energy?

Ideas:

- organize a drawing competition
- prepare a special board game
- organize a trip to the place where renewable energy is used

PASS IT ON

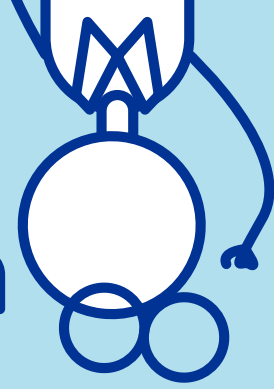
Rewrite on sticky notes
selected ideas!

After you write down your ideas, give a paper to the person on your right. When you got a paper with some ideas: read them and add three more. You can't write the ideas you already wrote down, and they need to be new. Be inspired by someone else ideas. Modify them, add new elements, write the opposite one.

THE GENERAL RULE IS THAT YOU SHOULD WRITE THE IDEAS AS FAST AS POSSIBLE: IT MEANS THAT YOU ARE WRITING FIRST IDEAS THAT COME TO YOUR MIND. KEEP THE ORDER WHEN PASSING BY THE PAPER. IT MAY HAPPEN THAT SOME OF YOU DON'T HAVE PAPER IN FRONT AND ONE PERSON HAS THREE THAT NEED TO ADD SOME IDEAS ON - IT'S OK. AROUND SIX PEOPLE SHOULD PARTICIPATE IN THE GAME. IF YOU ARE IN THE SMALLER GROUP MAKE TWO ROUNDS.


THE GAME FINISH WHEN THE PAPER YOU STARTED WITH COME BACK TO YOU. LOOK AT YOUR PAPER AND PUT THREE DOTS NEXT TO THE IDEAS YOU LIKE MOST. EACH SHOULD SELECT IDEAS AT EACH PAPER

UPSIDE DOWN



ACTIVITY:

NEXT ACTIVITY WILL HELP US TO GO BEYOND MOST COMMON IDEAS. AT THE BEGINNING WRITE DOWN FIVE SENTENCES THAT PRESENT HOW THE CURRENT SITUATION LOOKS LIKE.

1 
2 _____
3 _____

4 
5 _____

EXAMPLE:

Just on few lessons during the school year renewable energy topic is raised up.

Travelers don't have access to the electricity for the majority of the time.

REWRITE THE SENTENCES TO MAKE THE OPPOSITE:

At each lesson, there is at least one sentence said about renewable energy.

Travelers have access to the power in places where there is no electricity exactly when they want it.

Now think how this new situation may work, what solutions were implemented?

Write down ALL your ideas.

SELECT IDEAS

With the next stage comes the time to select ideas we will develop.

We will choose those that have the biggest potential. What does it mean? They can solve the problem you have defined and answer user needs.

ACTIVITY:

LOOK AT IDEAS FROM TWO ACTIVITIES. WRITE THEM IN OUR CANVAS. GIVE THEM POINTS FROM 0 TO 3 IN TWO CATEGORIES (2). THE MORE POINT IT GETS THE BETTER IT CAN SOLVE THE PROBLEM/ANSWER USERS NEEDS.

IN THE BEGINNING, EACH TEAM MEMBER SHOULD GIVE POINTS INDIVIDUALLY. CHECK YOUR SCORING AND CHOOSE CONCEPTS THAT HAVE A SATISFYING NUMBER OF POINTS IN EACH CATEGORY.

PROTOTYPE

Probably at this stage of your work the idea is very general.

Example: Prepare a special board game.

Everyone who will read it may have a completely different concept of how it should work. Prototyping will help us to develop the idea and have a common understanding of it.

PROTOTYPING IS ABOUT DOING NOT TALKING, SO TAKE THE MATERIALS YOU HAVE NEXT TO YOU AND TRY TO MAKE A BOARD GAME AS YOU SEE IT, PREPARE THE POSTER THAT COULD PROMOTE THE EVENT, ETC.

ACTIVITY:

LOOK AT EXAMPLES OF PROTOTYPE AND PREPARE A PROTOTYPE OF YOUR SOLUTION.

TESTING

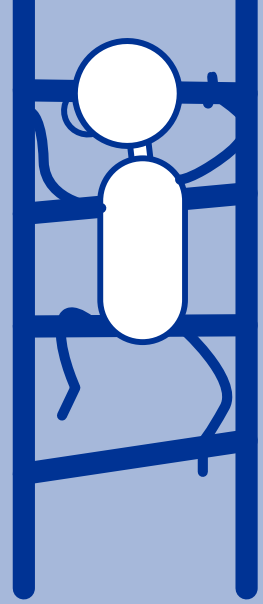
Problem with the ideas is that we easily **fall in love** with them. That's why to minimize the risk that we will be only one who will enjoy them, we need to validate it with others.

ACTIVITY:

PREPARE A LIST OF PEOPLE WHO CAN GIVE YOU MEANINGFUL FEEDBACK TO YOUR IDEA, FOR INSTANCE, EXPERTS IN THE RENEWABLE ENERGY FIELD. REMEMBER THAT WHOSE FOR WHOM THE SOLUTION IS DEDICATED NEED TO BE PERCEIVED AS EXPERTS AS WELL, AS THEY ARE THE ONLY ONE WHO CAN TELL YOU IF YOUR SOLUTION ANSWERS THEIR NEEDS.



The hardest thing in testing is not trying to sell your idea. While testing, **WE NEED TO LISTEN**, not convincing that our solution is right.



TESTING USUALLY IS COMPOSED OF THE FOLLOWING PARTS:

PROTOTYPE PRESENTATION

(if it's possible don't explain how your prototype works, give people a chance to interact with it)

COLLECTING GENERAL OPINION

(what our testers liked about the idea and what they didn't)

ASKING QUESTIONS ABOUT PARTICULAR ELEMENTS OF THE SOLUTION

(especially the one that are still vague, or wakes up a lot of emotions in your team)

Plan your testing and fill in prepared form.

CELEBRATION AND IMPLEMENTATION

CONGRATULATION!

You have just
finished your
first process using
a design thinking
approach.

If you won't be able
to implement the idea by
yourself, think who may help.

Look at the institutions you
mapped when discovering
the surrounding and try to set
up the meeting when you can
present your concept.

