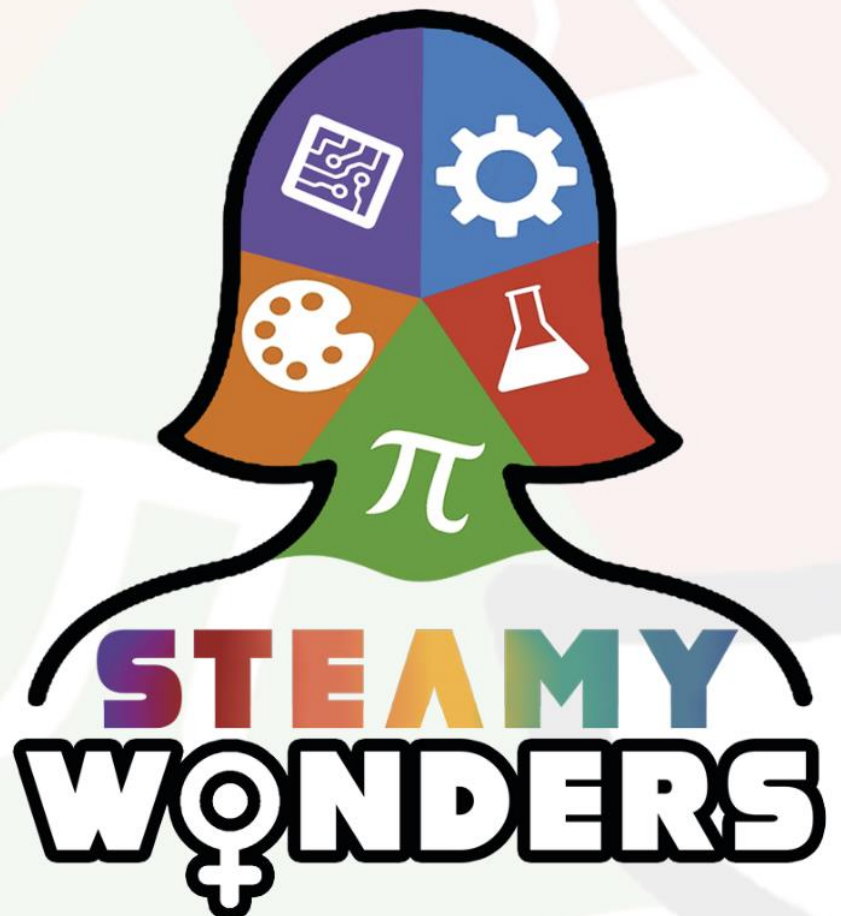


WebQuest

Mathematics – Career
Management





Element 4: A WebQuest.

THEME ALLOCATED:	Mathematics
TITLE OF THE WEBQUEST:	Plan your career in Maths
INTRODUCTION	
<p>Women still face gender inequalities when choosing to study or work in fields like science, technology, engineering and mathematics. Women's participation in STEM is one of the main areas where gender differences within education and employment persist.</p> <p>Due to the imbalances that occur across STEM subjects, women who aspire to pursue a career in the Maths sector are often discouraged to enter and stay in a STEM field and struggle to plan their learning and work opportunities.</p> <p>The Career Management Skills Framework supports the development and use of skills that best enable individuals to plan and pursue life, learning and work opportunities. The competencies are grouped under four themes:</p> <ol style="list-style-type: none"> 1. Self - Achieving a clear understanding of who you are, what is important to you and how you fit into the world around you 2. Strengths - Developing an understanding of what you're good at and how you can use your strengths 3. Horizons - Learning to visualise, plan and achieve career aspirations throughout your entire working life 4. Network - Understanding the importance of work and social relationships in building your career <p>What personal attributes and skills do you have that are particularly useful for your career in the Maths sector? What are you motivated to achieve? What learning and working opportunities do you have in Germany? What is your potential growth in this sector in your country?</p> <p>This WebQuest will guide you through a series of tasks to explore the possibilities of employment and help you plan your career in specialised fields in the Maths sector based on your interests and skills.</p>	
TASKS	
<p>Your task will be to explore the possibilities of employment in maths industries and to find the perfect job that suits you and your interests. It's conceived as a little self-reflective research about the interests and talents you have. Your final product will be 'Career Model Canvas' (https://canvanizer.com/new/personal-business-model-canvas), based on the Business Model Canvas, that will support you as a woman to plan and evaluate different</p>	





careers in Maths sector. The Career Model Canvas has been developed to match the four themes of the Career Management Skills Matrix (Self, Strengths, Horizons, Network). Let's get started!



Create your own career model canvas

Career or Job Title:

<p>Key Partners (Networks)</p> <p><i>Include an overview of networks in your region, nationally and across Europe where you can access advice on this potential career.</i></p>	<p>Key Attributes (Self)</p> <p><i>List here the key personal attributes that you have, that are particularly useful for your new career. Describe who you are and what you can bring to this role.</i></p>	<p>Value Proposition (Strengths)</p> <p><i>List your key strengths, highlighting the skills and experiences that you can bring to this new career. Try to answer the question: "What sets me apart from other candidates in this role?"</i></p>	<p>Soft Skills (Strengths)</p> <p><i>List here the soft skills (communication, teamwork, collaboration, etc.) that you have and identify how they can be used in this new career.</i></p>
<p>Key Values (Self)</p> <p><i>List here what is important to you in a career, and in life. List your intrinsic and extrinsic motivations, and state what your personal goals are for this new career.</i></p>		<p>Transferrable Skills (Strengths)</p> <p><i>List here the main transferrable skills that you have from other experiences and life roles. Include an example of how these skills can be applied in your new career.</i></p>	
<p>Revenue (Horizons)</p> <p><i>Research and summarise the salary potential of this role and estimate the opportunities for advancement in this sector for your own career.</i></p>		<p>Growth Potential (Horizons)</p> <p><i>Research and estimate the potential growth in this sector in your country, across Europe and globally.</i></p>	

PROCESS

TASK 1: Key Attributes (Self)

First step is to define the key attributes that you have that are particularly useful for your new career. How would you describe yourself? What are your talents? By describing yourself you will be able to answer concrete questions about the specific areas in which your interests and your talents lie and help you explore the sector that would suit you best. Come up with a list of your best traits, that are particularly useful for your new career in the maths sector.

- <https://www.thebalancecareers.com/personal-skills-list-2063763>
- How to describe yourself
<https://owlcation.com/humanities/how-to-describe-yourself>
- Career personality test
<https://www.truity.com/test/career-personality-profiler-test>

TASK 2: Key Values (Self)

What is important to you in a career, and in life? What are your personal goals? Your values are the things most important to you. What are the activities that you do because you find them fun, enjoyable, and interesting? Do you find personal satisfaction when helping others? Do you like to be challenged because it's fun and exciting? That's the motivation





that comes from within. You may also be motivated by external reward and engage in activities because you will get something in return, whether it's praise, fame, or money. Both internal and external factors play an important role in driving motivation and improving our performance. List your intrinsic and extrinsic motivations and state what your personal goals are.

- <https://careerwise.minnstate.edu/mymncareers/english-learner/what-is-important.html>
- <https://www.verywellmind.com/differences-between-extrinsic-and-intrinsic-motivation-2795384>
- <https://www.healthline.com/health/intrinsic-motivation#examples>
- <https://www.indeed.com/career-advice/career-development/intrinsic-motivation>

TASK 3: Key Partners (Network)

Support is extremely important. There are many networks across Europe and in Germany helping women scientists in their personal career development. If you are a young woman with children, you can also apply for yearly funding or monthly financial grants as a graduate or postdoctoral student – regardless of your nationality - to help you balance your family obligations with the duties of an independent female scientist. You can make your own research based on your location to find local networks where you can access advice on your potential career.

- <https://cacm.acm.org/magazines/2019/4/235600-women-are-needed-in-stem/fulltext>
- <https://www.gesis.org/en/femconsult/home>
- <https://www.stammzellen.nrw.de/en/research/funding-activities-and-careers/supporting-women-in-science>
- <https://euraxess.ec.europa.eu/career-development>





Association	URL
ACM-Women Europe	https://europe.acm.org/
Women in Research and Education (WIRE)	http://www.informatics-europe.org/working-groups/women-in-icst-research-and-education.html
Women in High Performance Computing	https://womeninhpc.org/
Athena SWAN	https://www.ecu.ac.uk/equality-charters/athena-swan/
Codess	https://www.codess.net/
Women in Technology and Science	https://witsireland.com/
Women in Games	http://www.womeningames.org/
European Network of Women in Leadership	https://www.wileurope.org/
European Network of Women Web Entrepreneurs Hubs	http://wehubs.eu/
Startup Europe Leaders Club	http://portal.opendiscoveryspace.eu/et/node/822017
European Platform of Women Scientists	https://epws.org/

Funding opportunities for women in science:

- <https://gscn.org/scientific-resources/funding-stem-cell-research/funding-women-in-science>
- <https://cnv-stiftung.de/en/goals>
- https://ec.europa.eu/info/research-and-innovation/funding_en
- <https://www.khys.kit.edu/english/finanzierungsmoeglichkeiten.php>

TASK 4: Value Proposition (Strengths)

What are your strengths? That's a very common question in job interviews. What sets you apart from other candidates? What valuable competitive advantage do you have? Think of skills that you may have gained through internships and work-study opportunities. Graduates who have gained international experience by studying abroad obtained first-hand knowledge of different cultures strengthening their resourcefulness and problem-solving skills, as well as their ability to adapt to a new environment. Learning about the art and the history of another culture develops your understanding of others. Can you think of any experience that helped you improve your language skills or develop any particular strengths that help you stand out?

- <https://www.topuniversities.com/student-info/careers-advice/top-five-employment-skills-provided-studying-abroad>
- <https://www.switchliving.com.au/student-guide/work-career-visa/life-experiences-to-boost-resume/>
- https://careers.yorku.ca/student_topic/benefits-of-volunteering

Task 5: Soft Skills (Strengths)

What are the so-called soft skills? Soft skills are personality traits and interpersonal skills that characterize a person's relationships with other people. They are non-technical skills





that relate to how you work, how you interact with colleagues, how you solve problems and how you manage your work. Communication, teamwork and collaboration are examples of soft skills. These are general common skills that you must have very well developed for any job, including those in the Maths sector. Highlight your soft skills, that are particularly relevant in your area.

- <https://www.thebalancecareers.com/what-are-soft-skills-2060852>
- <https://www.verizon.com/about/our-company/fourth-industrial-revolution/four-soft-skills-needed-be-successful-stem>
- <https://www.forbes.com/sites/alionescalante/2020/11/30/creativity-education-is-equally-important-for-careers-in-stem-and-the-arts/?sh=286bbc09554f>
- <https://www.psychologytoday.com/us/basics/big-5-personality-traits>

Task 6: Transferrable Skills (Strengths)

Transferable skills are talents and abilities that can be used in many different jobs and career paths. They can be acquired through employment, school, internships, hobbies, and volunteering experiences. Consider your work history, school activities, and life experiences. What skills have you consistently used? Most jobs require communication and multitasking skills, for example. You might have developed technology skills using Microsoft Office or any other software, or you might have expertise in public speaking. Think of how you can apply that knowledge in your career model.

- <https://www.thebalancecareers.com/transferable-skills-list-525490>
- <https://warwick.ac.uk/fac/sci/math/currentstudents/ughandbook/general/overview/transferableskills/>
- <https://edcircuit.com/five-simple-ways-to-add-creativity-in-mathematics/>
- <https://www.forbes.com/sites/nextavenue/2018/02/09/the-7-transferable-skills-to-help-you-change-careers/?sh=6897df634c04>

Task 7: Revenue (Horizons)

Pursuing a job related to mathematics is a choice that can bring you to a rewarding and lucrative career. Do you know the salary potential of your role? What are the most lucrative maths careers? Research and summarise the salary potential of your role and estimate opportunities for advancement in this sector for your own career across Europe and in Germany.

- <https://math.as.uky.edu/where-can-math-take-me>
- <https://www.prospects.ac.uk/careers-advice/what-can-i-do-with-my-degree/mathematics>
- <https://www.glassdoor.com/Salaries/know-your-worth.htm>
- <https://www.gehalt.de/>





Task 8: Growth Potential (Horizons)

High-tech remains male-dominated. Europe's gender gap in STEM is especially wide in information and communication technologies, with a percentage lower than 25%. Statistics show that natural sciences, mathematics and statistics are the fields with a more balanced gender ratio. Occupations in physical and social science or as biological scientists appear to be the most flourishing career paths for STEM female graduates. Do you know what's the potential growth in the Maths sector? What are the job opportunities in your city? In this final step, you will have to estimate the potential growth for this role in your country, across Europe and globally.

- <https://www.catalyst.org/research/women-in-science-technology-engineering-and-mathematics-stem/>
- <https://www.catalyst.org/research/women-in-science-technology-engineering-and-mathematics-stem/>
- <https://www.catalyst.org/research/women-in-male-dominated-industries-and-occupations/>

Now that you have completed all the steps it's time to visually summarize your skills, values, resources and growth opportunities in your personal Business Model Canvas. You can create your own BMC for your personal career development by clicking the following link:

<https://canvanizer.com/new/personal-business-model-canvas>

EVALUATION

As part of the assessment for this WebQuest, participants are encouraged to write a short self-reflection piece (200-259) whilst considering the following questions:

- Did the exercise help you plan your career in the maths sector?
- Did you identify what your skills, interests and talents are? Please mention that.
- Did you identify skills and abilities that you may have gained through other life experiences, that you were not aware about? Please mention that.
- Do you believe you have the necessary skills for some of the jobs in the maths sector?
- Did you identify what are the fields in the maths sector that are most suitable for you based on your skills and personal interests? Please mention that and justify your answer.
- Did you identify what your inner motivations are and what things are most valuable to you in your life?
- Is there any activity or experience you could do to help that will bring value to your future career and to your personal life?
- Did you find that this exercise was an interesting and useful way for you to start considering working in the maths sector?





CONCLUSION

Mathematics is challenging, rewarding and fun. It is both logical and creative. Students who major in mathematics have a variety of career opportunities in business, science, engineering or technical fields. Analytical thinking, quantitative reasoning, and the ability to manipulate precise and intricate ideas are only some of the skills that maths majors possess. Other skills such as creativity, teamwork, and time management are abilities that you can develop through your personal interests and different life experiences.

By completing this WebQuest, you have learned more about your knowledge-based skills, as well as your soft and transferrable skills that you may have gained throughout your life and that will bring value to your future career in the maths sector. You may have identified your inner motivations and the fields that might be most suitable for you based on your abilities, interests, and experience. Most people are motivated by external reward or financial gain, however, your inner motivation is what drives you to engage in one activity or to pursue one career because it's enjoyable and satisfying for you.

It is important that you identify what things are most valuable to you in your life and what your personal goals, and be motivated to pursue a career that you truly like. For example, if the environment really matters to you, you may want to find a "green job" in the maths sector that helps protect the environment. If the environment is not your priority, you can help yourself understand what motivates you by answering the following questions: which of the fields do you find most intriguing, and why? Where can you make an impact? Which problems do you want to solve? Think about it!



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