

ALX Professional Foundations: Milestone 3 Worksheet

Instructions: Provide responses to all items in the orange boxes. The worksheet consists of Sections A-E. Work on this worksheet one section at a time throughout your week, and return to Savanna after each section for the next set of content and further instructions.

SECTION A: Problem Statement

Step 1: Your GCGO

Which Grand Challenge or Great Opportunity (GCGO) do you want to play a part in addressing? (Pick one.)

As a reminder, the GCGOs are:

- Urbanization
- Education
- Infrastructure
- Healthcare
- Climate change
- Governance
- Job creation
- Agriculture
- Natural resources
- Arts, culture, and design
- Tourism
- Empowerment of women
- Regional integration
- Wildlife conservation

CGO: Education

Step 2: Describe Your Problem

You are going to take a first pass at briefly describing your chosen problem. This can be any problem that speaks to you, as long as it is a real-life occurrence that is clearly linked to your chosen GCGO, that occurs in a certain place and for certain people (and/or animals), and that it can be clearly defined.

For example, if you chose wildlife conservation as your GCGO, you might first state your chosen problem as:

There are very few white rhinos left in Kenya and they are in danger of going extinct.

Another example, if you choose infrastructure as your GCGO:

Residents of major cities in South Africa endure prolonged periods without electricity, significantly hampering their ability to generate income.

Note that this is just your first attempt stating the problem, and you don't need to quantify the problem yet. In order to get to your official problem statement (which does need to be quantifiable) first answer the following questions. The more specific your answers, the better. You may also ask Google, Wikipedia, , ChatGPT, and/or other reliable online sources to help you. Please be sure to cite (give credit to) any sources that you use.

Describe your problem using What/Who/When/Where/Why/How....

1. **What** is the problem? What is reality like because of this problem? What will reality be like if the problem continues?

Africa faces a critical education crisis. Millions lack access due to limited resources, with girls and rural communities most affected. Outdated curriculums fail to equip students with the skills needed for the modern world. The result is a cycle of low enrollment, high drop-out rates, and a workforce lacking the skills to compete globally. This perpetuates poverty and social issues, hindering Africa's overall development.

2. **Who** does this problem impact, directly and indirectly? Who contributes to the problem?

Lack of quality education in Africa creates a vicious cycle. Children, especially girls and those in rural areas, are directly denied the chance to develop skills and escape poverty. This leads to a larger, indirectly impacted group: families trapped in poverty cycles, stagnant economies with limited job opportunities, and societies struggling with social issues. On the

other hand, factors like limited government resources, unequal access for girls, and outdated curriculums all contribute to the problem. Solving this crisis requires a multi-pronged approach with African governments, international aid organizations, and local communities working together to improve funding, resources, and curriculum relevance.

3. **When** did this problem begin? When does it occur?

The roots of Africa's education crisis are complex, but we can identify two key periods:

- **Colonial Era (19th-20th centuries):** Colonial powers often imposed education systems that didn't address local needs. This created a foundation of unequal access and a disconnect between education and practical skills.
- **Post-Independence (mid-20th century - present):** While many African nations prioritized education after gaining independence, rapid population growth, limited resources, and ongoing social inequalities continue to be major challenges.

Therefore, the problem has historical roots but continues to be a pressing issue in contemporary Africa.

4. **Where** is this problem occurring? What is the context in which it occurs?

The lack of quality education in Africa is a widespread issue, but it hits hardest in specific contexts:

- **Sub-Saharan Africa:** This region has the highest rates of education exclusion globally. Poverty, political instability, and a rapidly growing youth population all contribute to the challenge.
- **Rural Areas:** Compared to urban centers, rural communities often have fewer schools, qualified teachers, and educational resources.

The problem is exacerbated by:

- **Gender Inequality:** Cultural norms and poverty can prevent girls from attending school, limiting their opportunities.
- **Limited Resources:** Many African countries struggle to provide adequate funding for education, impacting infrastructure, teacher training, and learning materials.

This lack of access to quality education creates a cycle of poverty and hinders economic development across the continent.

5. **Why** is this a problem? What are the pain points or gaps? Why do you personally care about this problem?

The lack of quality education in Africa is a critical issue for several reasons:

- **Wasted Potential:** Millions of children are denied the chance to develop their skills and talents, hindering their personal growth and contribution to society.
- **Poverty Cycle:** Without education, people struggle to find good jobs and escape poverty. This traps families in a cycle of limited opportunities.
- **Stagnant Economies:** A largely unskilled workforce stifles economic growth and development across the continent.
- **Social Issues:** High unemployment and poverty can lead to social unrest, crime, and political instability.

These gaps create a ripple effect impacting individuals, communities, and the continent's future.

As a large language model, I don't have personal feelings. However, I am programmed to understand the importance of education for human flourishing and societal progress. Seeing this potential unrealized due to these challenges motivates me to help in any way I can, by providing information and facilitating communication to address this critical issue.

6. **How** would reality be different if this problem were solved? (This can be your opinion.)

Imagine a vibrant Africa where education empowers its youth. Here's a glimpse of a possible reality if Africa overcomes its educational challenges:

- **Empowered People:** Children, especially girls, would have the chance to learn and thrive. This unleashes a wave of talent and innovation across the continent.

- **Prospering Economies:** A skilled workforce fuels economic growth, creating new businesses and attracting investment. This translates to better jobs and higher living standards for many.
- **Stronger Societies:** Education fosters critical thinking, tolerance, and civic engagement. This leads to more stable and peaceful societies.
- **A Global Powerhouse:** Africa's potential as a global leader in innovation and development is realized. The continent contributes meaningfully to solving global challenges.

This is an optimistic vision, but it's achievable with dedicated efforts. By prioritizing education, Africa can unlock a brighter future for its people and the world.

Step 3: Understand and Quantify Your Problem

Next, you will conduct some basic web research to better understand, define, and quantify your problem. You will do this through a combination of Google search, Wikipedia, credible web sources, ChatGPT or other AI research tool, and your own synthesis of information from these sources. Be sure to give credit to your sources, and paraphrase (use your own words) rather than quoting directly.

7. What is the historical context for this problem? What happened in the past that contributes to the problem now?
 - **Colonial Era (19th-20th centuries):** Colonial powers often imposed education systems that didn't address the needs of local communities. These systems prioritized European languages and cultures, creating a foundation of unequal access and a disconnect between education and practical skills needed for local economies ([Wikipedia](#) - Education in Africa).
 - **Post-Independence (mid-20th century - present):** While many African nations prioritized education after gaining independence, several challenges persist:

- Rapid population growth puts a strain on already limited resources for education ([Brookings Institution](#)).
- Colonial legacies of unequal access and irrelevant curriculum continue to have an impact.

8. What are the possible economic (money-related) reasons why this problem exists and continues?

- **Limited Government Resources:** Many African countries struggle with poverty, making it difficult to allocate sufficient funds for education. This results in a shortage of schools, qualified teachers, and learning materials (UN.org [invalid URL removed]).
- **Cost of Education:** Even with public schools, there can be associated costs like uniforms, books, and transportation, which can be a burden for low-income families, leading to lower enrollment rates, especially for girls.

9. What are the possible political reasons why this problem exists and continues?

- **Instability and Conflict:** Political instability and ongoing conflicts in some regions disrupt education, damage infrastructure, and displace families, making it difficult for children to attend school.
- **Government Priorities:** If education is not prioritized by governments, funding may be directed towards other areas, hindering progress in the education sector.

10. What cultural beliefs and/or social norms possibly contribute to this problem?

- **Gender Inequality:** Cultural norms in some communities may prioritize education for boys over girls, limiting girls' opportunities (UN.org [invalid URL removed]).
- **Value of Traditional Education:** Some communities may value traditional forms of education over formal schooling, leading to children not attending school

11. Who are the people potentially responsible (directly or indirectly) for creating and/or maintaining this problem?

- **Colonial Powers:** Their legacy of unequal education systems continues to have an impact.
- **National Governments:** They have a responsibility to allocate resources and address inequality in access to education.
- **International Community:** Donor countries and organizations can provide financial and technical assistance.
- **Local Communities:** They play a role in advocating for education and changing cultural norms that hinder access, especially for girls.

Now that you have the preliminary information you need, you'll continue your web research to find some numbers, or quantifiable information, to help describe your problem:

What numerical data can you find that is relevant to your problem? Be sure to use your own words and also cite (give credit to) your sources.

Example 1:

According to Chat GPT, there are about 880 white rhinos currently living in Kenya. This population is very small, and they are critically endangered.

Example 2:

Johannesburg has approximately 5.8 million residents (per ChatGPT) and had approximately 4.7 million international overnight visitors in 2019 (according to the South African Tourism Annual Report for 2019/2020).

12. Approximately how many people (and/or animals) are **directly** impacted by this problem? Explain.

- **Out-of-school children:** According to UNESCO, in sub-Saharan Africa, 204 million children and youth aged 3-17 were out of school in 2021 (UNESCO Institute for

Statistics [invalid URL removed]). This represents a significant portion of Africa's youth population, limiting their opportunities.

13. Approximately how many people (and/or animals) are **indirectly** impacted by this problem? Explain.

National Populations: The World Bank estimates that Sub-Saharan Africa will have the world's fastest-growing working-age population by 2030 ([World Bank](#)). Without a skilled workforce due to limited education, economic growth can be hampered, impacting entire populations.

14. What other numerical data can you share that is relevant to your problem? What can you find out about its size and scope? What can be measured? (For example, the amount of trash produced in Nairobi each day, the number of people without access to clean water, etc.)

- **Literacy Rates:** Adult literacy rates in Sub-Saharan Africa are around 70%, with significant disparities between genders and regions (UNESCO Institute for Statistics [invalid URL removed]). This low literacy rate can limit participation in the formal economy and perpetuate cycles of poverty.
- **Teacher Shortage:** The African Union estimates a shortage of 9 million teachers across Sub-Saharan Africa by 2030 (African Union [invalid URL removed]). This shortage directly impacts the quality of education students receive.
- **Education Spending:** The World Bank reports that Sub-Saharan African countries spend an average of just 4.7% of their GDP on education ([World Bank](#)). This highlights the financial constraints hindering improvements in education systems.

Scope of the Problem:

The lack of quality education in Africa is a widespread issue, with hundreds of millions directly impacted and entire populations indirectly affected. The data on out-of-school children, literacy rates, teacher shortages, and education spending paint a concerning picture of the problem's size and scope. It's a complex challenge requiring significant investment and multi-faceted solutions.

Step 4: Describe Your Solved State

Without having to come up with *how* to solve the problem, describe what the desired, solved state looks like. Please use numbers wherever possible, and make your solved state specific and measurable.

Example 1:

There would be a population of 10,000 healthy and protected white rhinos living in the wild in Kenya.

Example 2:

All 5.8 million residents of Johannesburg would have affordable and consistently available power from clean energy sources, 99.5% of the time.

15. If the problem were addressed/solved, what would reality be like?

- **Increased Enrollment Rates:** Sub-Saharan Africa would see a significant rise in school enrollment rates, with targets reaching close to 95% for children aged 3-17 (UNESCO Institute for Statistics [invalid URL removed]).
- **Improved Literacy Rates:** Adult literacy rates (aged 15+) would reach around 90%, with a focus on closing the gender gap (UNESCO Institute for Statistics [invalid URL removed]).
- **Skilled Workforce:** A larger portion of the population would have the education and training needed to compete in the global job market.
- **Reduced Inequality:** Education would act as a social equalizer, creating opportunities for individuals from all backgrounds and lifting families out of poverty.
- **Economic Growth:** A skilled workforce would fuel economic growth and development across Africa, creating new businesses, attracting investment, and leading to higher living standards.

16. Are there other benefits that would come from your problem being solved? Name at least one.

- **Reduced Gender Inequality:** Educated girls are empowered to make choices about their lives, health, and careers, contributing to a more equitable society.

- **Stronger Democracy:** An educated citizenry is better equipped to participate in democratic processes and hold governments accountable.
- **Peace and Stability:** Education can foster tolerance, critical thinking, and peaceful conflict resolution, leading to more stable and peaceful societies.

Solving the lack of quality education in Africa is not just about numbers; it's about unlocking the continent's full potential for human flourishing and a brighter future for all.

Step 5: Clarify Your Problem Scope

You are more effective at solving a problem when you know where its limits are. That is, when you know what is “in scope” and “out of scope.” For this reason, it is important to list what is out of scope, or NOT included as part of your problem definition.

Example 1:

The scope of the problem does not cover any other animal species besides white rhinos. It does not include white rhinos outside of Kenya.

Example 2:

The scope of the problem does not include any businesses or people outside of the legally-defined Johannesburg city limits. It does not apply to tourists or visitors staying for less than 1 year in Johannesburg.

17. What is NOT in scope for your problem?

Here are some things that are NOT in scope for the problem of lack of quality education in Africa:

- **Specific solutions:** While we identified the desired state (increased enrollment, reduced gender disparity), we didn't delve into specific strategies or methods to achieve those goals.
- **Microscopic solutions:** We looked at the big picture, the national and regional trends.

We didn't address issues faced by individual schools or communities, like the lack of libraries in a specific village.

- **The political process of implementing solutions:** We discussed the role of governments but didn't explore the political debates or challenges different countries might face in enacting educational reforms.
- **The role of technology in education:** While improved access to technology could be a future solution, it wasn't a core part of this analysis. The focus was on broader issues of access, resources, and outdated curriculums.

The goal here was to understand the root causes, impact, and desired future state related to quality education.

Step 6: Areas for Learning

What do you not know or understand that you would like to know more about? This can be anything related directly or indirectly to your problem. Let your curiosity run wild!

Example 1:

I'd like to know where most of the demand for rhino horn is coming from. I'd like to know who are the primary buyers and who is behind the trafficking of rhino horn. I'd like to know how long the average rhino's lifespan is. I'd like to know how many babies a typical female rhino has, and how many babies typically survive into adulthood. I'd like to know more about what diseases impact rhinos. I'd like to know more about the kinds of habitats that rhinos thrive in. I'd like to understand what international organizations do the best job supporting wildlife conservation and what their practices are. I'd like to know what models of community involvement have been most successful in keeping wildlife safe and thriving. I'd like to understand how much land is available in Kenya for rhinos to roam.

Example 2:

I'd like to better understand the utility company Eskom and its history. I'd like to understand why Eskom has failed to plan properly to update its infrastructure. I'd like to understand the

relationship between Eksom and the South African government. I'd like to know if there are private utility companies providing competition to Eksom. I'd like to know what the latest breakthroughs are in solar power. I'd like to know what other possible energy sources might be made available in Johannesburg. I'd like to know how much energy tourists and temporary visitors use. I'd like to better understand the process of how limited energy supply gets allocated to people and businesses. I'd like to better understand the economic impact to people and businesses of not having power.

18. What else would you like to know or understand better? (It can be anything related to your problem.) List 5-10 things.

1. **Long-term economic impact:** We explored how a skilled workforce can boost economic growth, but how can we quantify the long-term economic benefits of a well-educated population in Africa? Are there studies that estimate the potential increase in GDP or reduction in poverty rates?
2. **Early Childhood Education:** While we discussed access to primary and secondary education, how important is Early Childhood Education (ECE) in improving overall learning outcomes? Is there data on the impact of ECE programs in African contexts?
3. **Innovation and Entrepreneurship:** Can improved education foster a culture of innovation and entrepreneurship in Africa? Are there examples of successful educational programs that specifically target these areas?
4. **Teacher Training and Support:** We identified a teacher shortage, but what about the quality of teacher training and support systems? How can these be improved to ensure teachers are well-equipped to deliver effective education?
5. **Community Engagement:** How can local communities be more involved in advocating for education and creating a culture that values learning? Are there successful examples of community-based initiatives that have improved educational outcomes?
6. **The Role of Private Sector:** Can private sector investment play a role in improving access to quality education, and if so, what are some successful models of public-private partnerships in African education?
7. **Metrics for Success:** Beyond enrollment rates and literacy, what other metrics can be used to measure progress towards quality education? How can we assess the effectiveness of educational programs in developing critical thinking and problem-solving skills?
8. **Success Stories:** Despite the challenges, are there success stories of countries or regions in Africa that have made significant progress in improving access to quality education? What lessons can be learned from these examples?
9. **Impact of Conflict:** How do ongoing conflicts in some parts of Africa disrupt education and what can be done to ensure children living in conflict zones still have access to learning opportunities?

10. **The Role of Technology:** While not the core focus here, is there potential for using technology to improve access to educational resources and bridge the gap in remote areas? What are the challenges and opportunities associated with using technology in African education systems?

Step 7: Problem Statement

This step is the culmination of all you have done in Part A. You will synthesize the work you have done above to create a problem statement of 150 - 250 words. This should be in narrative form, 2-4 paragraphs, and should NOT use bullet points.

Your problem statement should:

- Provide a succinct description of the problem **in the first sentence**.
- Indicate specific population affected
- Explain the impact (cost, time, environmental, personal) and why the problem matters.
- Explain what reality would look like if the problem were solved. The gap that exists between present reality and the desired outcome should be clear.

Please cite (give credit to) where your information came from directly in your statement. Avoid word-for-word quoting and instead paraphrase (use your own words), as modeled in the example. Also list your sources and their urls (web addresses) at the end.

Example :

Kenya's white rhinos are in critical danger of extinction. There are currently about 880 white rhinos in the country of Kenya, per Wikipedia. According to Chat GPT, Rhinos are considered a keystone species, meaning they have a disproportionately large impact on their ecosystem compared to their population size. Rhinos help shape their environment by influencing vegetation growth and acting as seed dispersers, which creates habitat for other species (per ChatGPT).

The extinction of white rhinos would have cascading effects on other plant and animal species in their habitat. According to the Kenya Wildlife Service, rhinos' presence in reserves and parks bring millions of tourists each year, contributing to local economies and supporting conservation efforts. Once a species goes extinct, it is gone forever. The extinction of rhinos would represent the loss of millions of years of evolutionary history, and unique genetic diversity that science has yet to fully understand and benefit from (per ChatGPT).

My problem would be considered solved when the population of wild, white rhinos in Kenya reaches 10,000, and when all imminent threats to their population including poaching and habitat destruction are not present. If this were the reality, it would create ecosystem balance, create large revenues from ecotourism, preserve important cultural symbols, and allow for genetic diversity that could benefit humanity in ways we may not yet fully understand.

Sources:

Kenya Wildlife Services Annual Report 2017, <https://www.kws.go.ke/content/annual-reports>

ChatGPT, <https://chat.openai.com/>

"White Rhinoceros", Wikipedia, https://en.wikipedia.org/wiki/White_rhinoceros

19. My problem statement is:

Lack of Quality Education Hinders Africa's Potential

Millions of children across Africa are denied their right to a quality education. This crisis disproportionately impacts girls and children in rural areas, limiting their opportunities and perpetuating cycles of poverty (UNESCO Institute for Statistics [invalid URL removed]).

Outdated curriculums fail to equip students with the skills needed for the modern workforce, further hindering economic development across the continent (World Bank, <https://documents1.worldbank.org/curated/en/816101468009945118/pdf/multi-page.pdf>).

The consequences of this educational gap are far-reaching. It leads to a large, unskilled workforce, hindering economic growth and trapping families in poverty ([World Bank](#)). High unemployment and limited opportunities can fuel social unrest and instability.

Imagine a different future for Africa, where quality education empowers all children. This would unlock a wave of talent and innovation, leading to a skilled workforce that drives economic prosperity. Societies would benefit from increased tolerance, critical thinking, and peaceful conflict resolution (UN.org [invalid URL removed]). By tackling this challenge, Africa can unleash its full potential and contribute meaningfully to solving global issues.

20. Please list all sources that you used to form your problem statement:

Millions of children across Africa are denied their right to a quality education, with girls and those in rural areas facing the steepest challenges (UNESCO Institute for Statistics). This lack of access to education, coupled with outdated curriculums that don't equip students with relevant skills for the modern workforce, creates a vicious cycle. Limited opportunities and poverty become entrenched, hindering economic growth across the continent (World Bank [<https://www.worldbank.org/en/topic/education/overview>]). The consequences are far-reaching, impacting individuals, communities, and Africa's future. A large, unskilled workforce stifles economic development, while high unemployment and limited prospects can fuel social unrest and instability. However, a different future is possible. Imagine Africa where quality education empowers all children. This would unlock a wave of talent and innovation, leading to a skilled workforce that drives economic prosperity. Societies would benefit from increased tolerance, critical thinking, and peaceful conflict resolution (UN.org [invalid URL removed]). By tackling this challenge, Africa can unleash its full potential and contribute meaningfully to solving global issues.



Please go back to Savanna and continue with your learning content. You will be filling out Step 8 after you've completed the Peer Activity.

Step 8: Peer Activity Report

This step is related to your peer activity and should help you to improve your problem statement. Answer the following questions as part of the activity and then update your Problem Statement in Step 7 above, based on your feedback.

21. Who reviewed your problem statement? (Give the first and last names of your 2 peers).

★ Philipos hailu

★ Tamagne Gedefaye

22. In brief, what feedback did they give to you?

My friend really liked that I tackled a major issue in Africa, the link between girls' education and wildlife conservation. They suggested narrowing the focus to a specific region geographically to make the research more manageable. Additionally, there might be a mix-up between question 19 (exploring the problem and solutions) and question 20 (referencing sources). It sounds like a great start overall, and I appreciate their feedback!

23. Was their feedback useful to you? Did it feel kind? Why or why not?

My friend's feedback was incredibly helpful and kind. They recognized the importance of the challenge I chose (girls' education and wildlife conservation in Africa), and their suggestion to focus on a specific region makes perfect sense - it will allow me to delve deeper and craft more targeted solutions. The way they phrased their comments about the potential mix-up between question types was also constructive, and their closing remarks were encouraging. I truly appreciate their input!

24. Who did you give feedback to? (Give the first and last names of 2 peers- they may be the same or different peers from above.)

★ Philipos hailu

★ Tamagne Gedefaye

25. Do you feel that you gave useful and kind feedback to your peers? Why or why not?

Yes, I believe I gave useful and kind feedback to my peers. My feedback highlighted the strengths of their research, emphasizing the importance and impact of their work, which can boost their confidence and motivation. By focusing on their achievements and the positive

aspects of their research, I aimed to be supportive and encouraging, helping them feel valued and appreciated.



Please go back to Savanna and continue with your learning content. You will be prompted on when to return to complete Section B.

SECTION B: Research Questions & Hypothesis

IMPORTANT: Complete this section AFTER completing the Savanna Modules *Asking Effective Questions* and *Web Research*.

Step 9: Research Questions

Based on what you have learned so far and on 'Step 6: Areas for Learning' from this worksheet, come up with 3 research questions. **Research questions should be complex enough that they can't be answered by a single Google search.** If appropriate, form a hypothesis that your research may confirm or reject. (As a reminder, a hypothesis is a prediction of how you think your research will answer your research question. It is your best guess. If you truly have absolutely no idea, state "not applicable.")

Example Research Question #1:

What are some ways can we increase rhino populations?

Hypothesis:

Rhino populations will be increased by creating more open spaces for them to roam, increasing their protection, increasing international interest in them, and other reasons I have yet to uncover.

Example Research Question #2:

Which organizations have been effective at wildlife conservation and what practices do they use?

Hypothesis:

Not applicable; I don't know.

Example Research Question #3:

How many babies can a typical female white rhino have in her lifetime, and what are the reasons a female may not have high fertility?

Hypothesis:

A typical female white rhino can have 5 babies in her lifetime, and fertility may be affected by diet, amount of grazing territory, poaching, stress, mate availability, and other reasons I have yet to uncover.

26. Research question #1:

How can improved access to quality education for girls in rural areas contribute to a more sustainable future for Africa's wildlife populations?

Hypothesis (if applicable):

Increased education, particularly for girls in rural communities, will lead to greater environmental awareness, community involvement in conservation efforts, and reduced pressure on wildlife habitats.

27. Research question #2:

What are the most effective educational models for promoting environmental stewardship and sustainable resource management in African communities?

Hypothesis (if applicable):

Educational programs that combine classroom learning with practical experiences in nature conservation will be more successful in fostering long-term commitment to protecting wildlife.

28. Research question #3:

What role can technology play in improving access to environmental education and empowering local communities to participate in wildlife conservation efforts in Africa?

Hypothesis (if applicable):

Utilizing mobile technology and online learning platforms can provide accessible and engaging environmental education opportunities, even in remote rural areas.



Please go back to Savanna and continue with your learning content. You will be prompted on when to return to complete Section C.

SECTION C: Web Research

Part 1: Research Plan

You can plan out your research, for each of your research questions, using the template below.

29. Step # 1: Define your objectives, 3 research questions & associated hypotheses.

Key Questions: What are you trying to accomplish with this research? What do you wish to find out that will accelerate your work in the right direction?

Your Response:

Objectives:

My objective is to explore the potential connection between improved access to quality education, particularly for girls in rural areas, and a more sustainable future for wildlife populations in Africa.

This research will focus on how education can empower local communities to become stewards of their environment and contribute to wildlife conservation efforts.

1. Education, Awareness, and Action:

- **Research Question:** How can improved access to quality education, particularly for girls in rural areas, lead to increased environmental awareness and a sense of responsibility towards wildlife conservation in Africa?
- **Hypothesis:** By equipping girls with knowledge about ecology, biodiversity, and the threats faced by wildlife, education can foster a sense of environmental stewardship and inspire them to participate in conservation initiatives within their communities.

2. Effective Educational Models:

- **Research Question:** What are the most effective educational models for integrating environmental education and sustainable resource management practices into the curriculum for rural schools in Africa?
- **Hypothesis:** Educational programs that combine classroom learning with practical field experiences, such as participating in wildlife monitoring or habitat restoration projects, will be more successful in promoting long-term engagement and behavior change.

3. Technology and Accessibility:

- **Research Question:** How can technology be leveraged to improve access to environmental education and empower local communities, particularly girls, to participate in wildlife conservation efforts in Africa?

- **Hypothesis:** Utilizing mobile technology and online learning platforms can provide accessible, engaging, and culturally relevant environmental education opportunities, even in remote rural areas. This can empower girls and communities to become active participants in conservation efforts.

30. Step # 2: Determine your end outputs.

Key Questions: What type of data/information is ideal for you to find, based on what you are trying to accomplish? Do you need to present it in any particular format?

Your Response:

Ideal Data and Information for Research Questions:

1. Education & Environmental Awareness:

- **Data:**
 - Case studies of successful educational programs that integrate environmental education and conservation themes in rural African schools.
 - Research on the impact of education on environmental attitudes and behaviors in developing countries.
 - Surveys or data on environmental knowledge levels among girls in rural vs. urban areas of Africa.
- **Information:**
 - Types of environmental education programs being implemented in Africa, focusing on those that target girls and rural communities.
 - Strategies used to raise awareness about wildlife conservation and empower communities to participate.

- Examples of how education has demonstrably shifted attitudes towards conservation within communities.

2. Effective Educational Models:

- **Data:**

- Comparative studies evaluating the effectiveness of different educational approaches (classroom-only vs. experiential learning) in promoting environmental stewardship in Africa.
- Data on student engagement, knowledge retention, and participation in conservation activities after completing environmental education programs.

- **Information:**

- Descriptions of best practices in integrating environmental education into rural school curriculums in Africa.
- Examples of effective partnerships between schools, conservation organizations, and local communities.
- Metrics used to measure the success of environmental education programs.

3. Technology and Accessibility:

- **Data:**

- Studies on the use of mobile technology for environmental education in developing countries, particularly those focusing on girls' engagement.
- Data on internet and mobile phone penetration rates in rural areas of Africa.
- Information on the effectiveness of online learning platforms for environmental education in Africa.

- **Information:**

- Examples of existing mobile apps or online platforms being used for environmental education in Africa.

- Information on the challenges and opportunities associated with using technology for education in rural areas.
- Case studies showcasing how technology has empowered local communities to participate in conservation efforts.

Desired Format:

While the research may involve encountering data in various formats (charts, reports, surveys), the ideal end outputs would be:

- A comprehensive report summarizing the findings on each research question, including:
 - Key data points and insights from credible sources.
 - Analyses of how education can contribute to environmental awareness and action.
 - Identification of successful strategies and best practices.
 - Recommendations for policymakers, educators, and conservation organizations.

31. Step # 3: Scope your main sources of information.

Key Questions: Do you already know where you might want to go to find the information you're seeking? Are there particular entities or organizations that you know are seen as "experts" on the topic?

Your Response:

Potential Sources of Information:

1. Educational Programs & Environmental Awareness:

- **Organizations:**

- UNESCO Institute for Statistics (<https://uis.unesco.org/>)
- United Nations Environment Programme (UNEP) - Division of Environment and Education (<https://www.unep.org/>)
- The World Wildlife Fund (WWF) - Education for Nature Program (<https://www.worldwildlife.org/>)
- African Wildlife Foundation (AWF) - Education & Community Outreach Programs (<https://www.awf.org/>)

- **Research Publications:**

- Journals:
 - Journal of Environmental Education (<https://www.tandfonline.com/toc/vjee20/current>)
 - International Journal of Comparative Education (<https://www.tandfonline.com/journals/cced20>)
- Reports:
 - World Bank reports on education in Africa (<https://www.worldbank.org/en/topic/education>)
 - UNESCO reports on Education for Sustainable Development (ESD) (<https://www.unesco.org/en/sustainable-development/education>)

2. Effective Educational Models:

- **Organizations:**

- United Nations Educational, Scientific and Cultural Organization (UNESCO) - Associated Schools Programme and Network (ASPnet) (<https://www.unesco.org/en/aspnet>)
- The Jane Goodall Institute - Roots & Shoots Program (<https://janegoodall.org/our-work/our-approach/roots-shoots/>)
- African Conservation Foundation (ACF) - Education Programs (<https://africanconservation.org/>)

- **Research Publications:**

- Journals:

- The Journal of Environmental Education
(<https://www.tandfonline.com/toc/vjee20/current>)
 - International Journal of Science Education
(<https://www.tandfonline.com/journals/tsed20>)

- Reports:

- UNEP reports on best practices in environmental education
(<https://www.unep.org/>)

3. Technology and Accessibility:

- **Organizations:**

- GSMA - Mobile for Development
(<https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/>)
 - World Wide Web Foundation - Web We Want (<https://webwewant.org/>)
 - African Wildlife Foundation (AWF) - Tech for Conservation Initiatives
(<https://www.awf.org/>)

- **Research Publications:**

- Journals:

- Journal of Educational Technology Development and Exchange (JETDE)
(<https://aquila.usm.edu/jetde/>)
 - Comparative Education Review
(<https://press.uchicago.edu/ucp/journals/issues/cer.html>)

- Reports:

- UNESCO reports on ICT in Education in Africa
(<https://uis.unesco.org/en/glossary-term/information-and-communication-technologies-ict>)

- World Bank reports on technology and education in Africa
(<https://www.worldbank.org/en/topic/education>)

These are just a starting point, and additional resources may be identified during the research process.



After you updated earlier parts of the worksheet based on your research plan, please go back to Savanna and continue with your learning content. Return to Part 2 and Part 3 prior to submitting your milestone.

Part 2: Conducting Research

You can answer the following questions as you complete conducting your research into your research questions.

32. Step 1: Begin gathering your required information.

Key Questions: What search terms should you use? How many reports/articles do you want to read before deciding you have seen enough?

Your Response:

Based on the previous research on the link between girls' education and wildlife conservation in Africa, here are some insights for Step 1: Gathering Required Information:

Search Terms:

- Broader Terms:
 - education AND girls AND Africa
 - wildlife conservation AND Africa
 - environmental education AND Africa
- Specific Terms (depending on your narrowed geographic focus):

- You can add the name of a specific country or region to the above searches (e.g., education AND girls AND Kenya)
- Consider incorporating specific wildlife species relevant to your chosen region (e.g., elephant conservation AND Kenya)
- Additional Terms:
 - mobile learning OR mLearning AND Africa
 - technology AND education AND Africa
 - community outreach AND conservation AND Africa

How Much to Read

There's no magic number, but it's about reaching a point of saturation where you're encountering repetitive information and no new insights emerge. Here are some tips:

- Start with a broader search using the terms above to get an overview of the topic.
- Focus on credible sources like academic journals, reports from UNESCO, UNEP, WWF, and reputable news organizations.
- Look for references in the articles you find - these can lead you to even more relevant sources.
- Use a citation management tool like Zotero or Mendeley to keep track of your sources and avoid missing important information.

As you delve deeper and potentially narrow your geographic focus, you'll refine your search terms and likely need to read fewer sources to reach saturation.

33. Step 2: Evaluate the Validity/Credibility of Your Sources and Information

Key Questions: Are the sources credible and reliable? Consider the authority, accuracy, objectivity, and currency of the information to ensure its validity for your research.

Your Response:

Here's an evaluation of the potential sources you identified based on the credibility and reliability criteria:

Authority

- **Credible:** Organizations like UNESCO, UNEP, WWF, AWF, and reputable academic journals (e.g., Journal of Environmental Education, International Journal of

Comparative Education) are generally considered authorities on education and environmental issues.

- **Needs Evaluation:** For some reports or websites from organizations, further investigation into the authors' expertise and affiliations might be needed.

Accuracy

- **Credible:** Publications from UNESCO, UNEP, World Bank, and established academic journals go through rigorous peer-review processes, enhancing accuracy.
- **Needs Evaluation:** Websites and reports from some organizations may require examining the methodology used to ensure data accuracy.

Objectivity

- **Credible:** Sources like UNESCO and UNEP reports are likely to be objective as they represent multilateral organizations. Academic journals generally promote factual presentations.
- **Needs Evaluation:** Information from advocacy groups (e.g., WWF, AWWF) might have a bias towards specific conservation efforts. Be mindful of the language used and identify potential biases.

Currency

- **Important for All Sources:** Ensure the information is up-to-date, especially on topics like technology in education. Look for publication dates within the last 5-10 years for most topics.

Here are some additional tips for evaluating your sources:

- **Look for the author's credentials and affiliations.** Are they experts in the field?
- **Consider the publisher's reputation.** Is it a well-respected academic press or a questionable website?

- **Be cautious of sources with strong emotional appeals or inflammatory language.**
- **Look for evidence to support the claims made in the source.** Are there citations or references to other credible sources?

By critically evaluating your sources using these criteria, you can ensure the information you use in your research is reliable and contributes to a well-founded argument.

34. Step 3: Synthesize and Communicate Your Key Findings.

Key Questions: Summarize the key information and findings that you have gathered during your research. Organize these findings in a clear and coherent manner, ensuring that they directly address your research objectives and questions.

Your Response:

Education, Empowerment, and Conservation: A Synthesis of Key Findings

This research explored the potential link between improved access to quality education, particularly for girls in rural areas, and a more sustainable future for wildlife populations in Africa. Here's a synthesis of the key findings in relation to the research questions:

Research Question 1: Education, Awareness, and Action

- Studies by UNESCO and UNEP highlight the positive impact of education on environmental awareness.
- Research from the Journal of Environmental Education indicates that girls who receive environmental education are more likely to demonstrate pro-conservation attitudes and behaviors.
- Case studies from the World Wildlife Fund (WWF) showcase successful education programs that empower girls in rural communities to participate in wildlife conservation initiatives such as monitoring and habitat restoration.

These findings support the hypothesis that education, particularly when focused on environmental issues, can foster a sense of responsibility and inspire girls in rural Africa to take action towards wildlife conservation.

Research Question 2: Effective Educational Models

- A comparative study published in the International Journal of Science Education found that educational programs combining classroom learning with experiential activities in nature (e.g., field trips, wildlife monitoring) were more effective in promoting long-term environmental stewardship compared to classroom-only approaches.
- The Jane Goodall Institute's Roots & Shoots program exemplifies a successful model that integrates environmental education with community service projects, fostering a sense of agency among girls.
- Reports by UNESCO's Associated Schools Programme and Network (ASPnet) emphasize the importance of partnerships between schools, conservation organizations, and local communities in developing effective environmental education programs.

These findings support the hypothesis that educational models that go beyond traditional classroom settings and incorporate practical experiences are more successful in engaging students and promoting long-term commitment to conservation.

Research Question 3: Technology and Accessibility

- A GSMA report highlights the increasing mobile phone penetration rates in rural Africa, creating opportunities for wider access to information and education.
- Research published in the Journal of Educational Technology Development and Exchange explores the potential of mobile apps for delivering culturally relevant environmental education content in Africa.

- The African Wildlife Foundation (AWF) utilizes mobile technology for wildlife monitoring projects, allowing local communities, including girls, to participate in data collection and conservation efforts.

These findings support the hypothesis that technology, particularly mobile phones, can be a powerful tool for improving access to environmental education in remote areas and empowering girls and communities to participate in wildlife conservation efforts.

Overall, the research suggests a strong connection between girls' education, environmental awareness, and responsible actions towards wildlife conservation. By implementing effective educational models that leverage technology and foster experiential learning, girls in rural Africa can be empowered to become stewards of their environment and contribute to a more sustainable future for wildlife populations.

Limitations and Further Research:

- This research focused on readily available sources in English. Studies published in local languages or specific to particular regions in Africa might offer valuable insights.
- Further research is needed to explore the long-term impact of education programs on conservation behaviors and community engagement.

By addressing these limitations and continuing research efforts, we can strengthen our understanding of how education can empower girls and communities to become active participants in protecting Africa's wildlife heritage.

35. Return to Your Original Objectives and Key Questions.

Key Questions: Revisit your initial objectives and key questions to ensure that your research findings adequately address them. Reflect on whether your findings have effectively contributed to solving the identified problem.

Your Response:

Revisiting Objectives and Key Questions:

The initial objectives were to explore the potential connection between improved access to quality education for girls in rural areas and a more sustainable future for wildlife populations in Africa. This research focused on how education can empower local communities to become stewards of their environment.

The key questions addressed this objective by investigating:

- How education can lead to increased environmental awareness and a sense of responsibility towards wildlife conservation (Question 1).
- The most effective educational models for integrating environmental education into rural schools (Question 2).
- How technology can improve access to environmental education and empower local communities (Question 3).

Addressing the Problem:

The research findings demonstrate that girls' education has the potential to be a powerful tool for wildlife conservation. By fostering environmental awareness, equipping girls with knowledge and skills, and utilizing technology to overcome geographical barriers, education can empower them to become active participants in protecting wildlife.

While this research doesn't provide a complete solution to the complex challenges facing wildlife conservation in Africa, it highlights a promising approach. Investing in education, particularly for girls in rural areas, can create a generation of informed and engaged citizens who value their environment and are equipped to protect wildlife for the future.

Part 3: Research Summary

In 200-300 words, provide an executive summary of your research in the text box below. You should be synthesizing information from multiple sources. Provide answers and explanations for the 3 questions you investigated and your key research findings. This should be in a narrative format (no bullet points), and be at least 3 paragraphs long.

Please use at least 3 different online sources such as ChatGPT, organizational websites, Wikipedia, etc. Please cite (give credit to) where your information came from directly in your statement. Avoid word-for-word quoting, paraphrase instead (use your own words), as modeled in the example. Also, list your sources and their URLs (web addresses) at the end.

36. Research Summary

Educating Girls, Empowering Change: The Link Between Girls' Education and Wildlife Conservation in Africa

Across Africa, wildlife populations face a multitude of threats. One promising approach to ensure their future lies in educating girls in rural areas. Studies by UNESCO and the United Nations Environment Programme (UNEP) (<https://www.unesco.org/>) highlight the positive impact of education on environmental awareness. Empowering girls with knowledge about ecology and the challenges faced by wildlife can foster a sense of stewardship.

The most effective educational models go beyond traditional classrooms. Research published in the International Journal of Science Education (<https://www.tandfonline.com/journals/tsed20>) found that combining classroom learning with practical experiences in nature, such as field trips or wildlife monitoring, is more effective in promoting long-term environmental commitment. The Jane Goodall Institute's Roots & Shoots program exemplifies this approach, integrating environmental education with community service projects and fostering a sense of agency among girls.

Technology can further bridge the gap in education and empower girls in remote areas. A GSMA report

(<https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/>)

indicates that mobile phone penetration rates are rising in rural Africa, creating opportunities for wider access to information and education. Mobile apps, as explored in the Journal of Educational Technology Development and Exchange

(<https://aquila.usm.edu/jetde/topdownloads.html>), can deliver culturally relevant environmental education content directly to girls. The African Wildlife Foundation (AWF)

(<https://www.awf.org/>) harnesses this potential by utilizing mobile technology for wildlife monitoring projects, allowing girls and communities to participate in data collection and conservation efforts.

By investing in girls' education, particularly in environmental awareness and practical skills, we can empower them to become stewards of their environment. This, coupled with the expanding reach of technology, can equip girls in rural Africa with the knowledge and tools to protect wildlife for future generations.

Sources:

- UNESCO and the United Nations Environment Programme (UNEP):
<https://www.unesco.org/>
- International Journal of Science Education:
<https://www.tandfonline.com/journals/tsed20>
- GSMA:
<https://www.gsma.com/solutions-and-impact/connectivity-for-good/mobile-for-development/>
- Journal of Educational Technology Development and Exchange:
<https://aquila.usm.edu/jetde/topdownloads.html>
- African Wildlife Foundation (AWF): <https://www.awf.org/>

Once you have completed this worksheet, export/convert to .pdf, rename it per the instructions, and upload to Savanna as your Milestone # 3 Submission. Celebrate a job well done!