



Youth for STEM Equity Chapter Formation Handbook

Striving To Empower Minds

Your Simple Guide to Ending STEM Inequity One Chapter at a Time.





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Youth for STEM Equity's Core Values and Mission

As a Youth for STEM Equity chapter, you will be expected to abide by YSE's core values and understand and embody YSE's mission.

Our Mission:

Youth for STEM Equity is a student-led, non-profit organization based in Columbus, Ohio that works towards making academic opportunities and increased engagement within the STEM field for all individuals by eliminating racism and discrimination through arduous activism, essential education, and influential initiatives. Through fostering diversity in the STEM community, we hope to enhance the growth of the international knowledge economy!

Our Core Values:

EQUITY: No matter the socioeconomic background, race, gender, religion, sex, age, and more, everyone is as capable as the other to achieve greatness. By maintaining equity in all stages of society the world will ride a train of prosperity.

EDUCATION: Education is the utmost salient gift required for the cultivation of analytical and critical thinkers. By educating society, individuals will have a higher propensity to be reflective of their actions, and take initiative to achieve their STEM endeavors in an all-inclusive environment!

ENGAGEMENT: Individuals must rigorously engage in creating environments supporting the needs of all. They need to voice their cognizance and spread cognizance over prominent societal issues; furthermore, the public should engage in taking self-initiative and exploring the STEM community to bolster the knowledge economy



Selecting the Correct Advisor

Choosing the correct advisor for your YSE chapter is very important. Here is a simple checklist to help you choose the best advisor for your YSE chapter.

Advisor Checklist:

- ☐ The advisor is a teacher or professor
- ☐ The advisor is available to supervise Youth for STEM Equity General Body meetings (Middle school and High school)
- ☐ The advisor embodies Youth for STEM Equity's mission and values
- ☐ The advisor will be able to serve as a mentor, coach, and support system
- ☐ The advisor will be able to facilitate events and fundraisers

How to Ask your Teacher/ Professor to Be your Advisor:

We understand that reaching out to your teacher or professor to be your advisor can be daunting, so here is a list of suggestions that can help make this process easier!

- If none of your own teachers and professors seem like a good choice for an advisor, consider researching others who teach classes or have personal values that align with YSE's mission. Then, cold emailing many of these professionals can often help you find an advisor.
- Set up meetings with many potential advisors to see who you would work with best. It is important that you feel comfortable talking to and working with this person!
- Be upfront with your potential advisors! Tell them your expectations and what exactly you foresee their role to be. This way, there will be no discrepancies in the future.



How should you elect leaders to be on the Executive Board?

Leaders should be elected based on an application basis which assesses their ability to direct and carry out large projects. Each application should be examined thoroughly by every Executive Board member in an unbiased fashion, and should be graded on the following scale:

Leadership ability: Rating 1-5; 1 being the lowest, 5 being the highest ____

❖ Rationale:

Quality of answers: Rating 1-5; 1 being the lowest, 5 being the highest ____

❖ Rationale:

Prior Experience: Rating 1-5; 1 being the lowest, 5 being the highest ____

❖ Rationale:

Alignment with YSE's Mission: Rating 1-5; 1 being the lowest, 5 being the highest ____

❖ Rationale:

Voting is not permitted as a system to elect leaders as it can be biased and does not follow the values of Youth for STEM Equity.

After individual consideration by each Executive board member, the team should hold a board meeting, discuss their thoughts, and come up with a list of their top candidates. All candidates should be interviewed, and then appointed to become a part of the Executive Board team.



Youth for STEM Equity Executive Board Application

We are so excited you are interested in becoming a large part of Youth for STEM Equity!
Please fill out this application to #jointheYSEmission.

Personal Information:

Full Name:

Preferred Name:

Preferred Pronouns:

Email Address:

Phone Number:

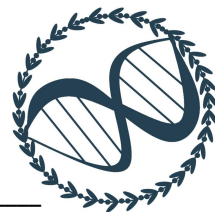
Year of Study:

What leadership position(s) are you applying to?

- ☐ President
- ☐ Vice-President
- ☐ Treasurer
- ☐ Secretary
- ☐ Outreach Director
- ☐ Media and Marketing Director
- ☐ Fundraising Director

Why do you want to become part of the Executive Team for Youth for STEM Equity?

How do your values align with YSE's mission?



Outline a new idea you will implement into YSE and the steps you will take to accomplish it:

What prior experience do you have that can aid you to be a good fit for the role(s)?

How would you describe yourself in less than 10 words?

Thank you for filling out this Executive Board application!

We will be in touch with you shortly!



Position Descriptions

***President:** The President oversees the progress of the entire chapter, and makes key decisions on the chapter's next steps toward growth and expansion. This position requires a strong leader who is ready to take initiative and is truly passionate about the cause. Should be able to make tough decisions and communicate effectively with the rest of the team for the success of the rest of the chapter.

***Vice-President:** The Vice President should be on par with the standards set by the president, and should be a co-lead on executing large events and directing the volunteers. The Vice President should be able to collaborate and work well with the president on completing difficult tasks at hand.

***Treasurer:** The treasurer should be in charge of calculating all expenses, costs, and benefits of all monetary expenses or gains. They should be well-equipped with Excel (or some other organizational method), and should be very organized and methodical in all that they do.

***Secretary:** The secretary should keep a running documentation of what was discussed at every board meeting, or event, and should send out correspondences to the volunteers of the chapter regarding meeting times, locations, etc. They should also be responsible for keeping all company files organized and private. Should be a well-organized leader.

Outreach Director: The Outreach director should initiate fundraising ideas for the club and cultivate growth and partnerships within and beyond the community. They should be well-spoken and should be able to represent YSE and its missions at various levels.

Media and Marketing Director: The Media and Marketing Director should be innovative with new marketing and event ideas. They should take pictures of the events to post on social media, following all YSE guidelines. They should have attention to detail and a creative mindset.



Fundraising Director: The Fundraising Director should work closely with the Outreach director to execute fundraising ideas and generate revenue for the chapter through a variety of fundraisers, events, and more.

Note: * indicates the required positions.



Social Media Approval Form

In order to maintain YSE's professionalism and integrity across all platforms, we ask that you submit all media that you wish to post through this form. If approved, the media can be posted any time following the approval!

This form is only for the first two chapter posts after which you are able to proceed without formal approval

Please paste the media you would like to post here if any:

Please paste the caption for the media if any:

Approved? (yes/no)

MMR Director Signature



Meeting Minutes (Sample) – Delete this and box below

It is expected that every meeting, meeting minutes are taken by the Secretary. These are to keep track of what had been discussed and to maintain professionalism.

Youth for STEM Equity Chapter Leadership Meeting

Meeting Details

[Insert Name of who called the meeting] called to order the regular meeting of Youth for STEM Equity at **[Insert start time]** - **[Insert end time]** on **[Insert date]**

Location:	[Insert location]
Date:	[Insert date]
Time	[Insert duration]
[Insert the name of the Secretary] conducted a roll call. The following persons were present:	
Members in Attendance	[List first and last names of all members in attendance]
Excused Members	[List first and last names of all members excused]
Absent Members	[List first and last names of all members absent]
Guests	[List first and last names of all guests if present]
Attendee Circulation Timestamps	



Agenda

Item	Description	Organizer
1.00	[Insert agenda— add more boxes below if needed. Usually, it is better to have a pre-planned agenda in order to have a more productive board meeting!]	[Insert name of the organizer]
2.00		
3.00		
4.00		
5.00		



Chapter Executive Leadership Organization & Project Proposal

Thank you for expressing your interest in leading a Chapter of Youth for STEM Equity (YSE). As stewards of YSE's mission, the YSE's executive team plays a pivotal role in fostering equity, promoting engagement, and advancing STEM education. We appreciate your commitment to these values. Please complete this project proposal to begin your work as a chapter!

Personal Information:

President:

Full Name:

Preferred Name (optional):

Preferred Pronouns:

Phone Number:

Email Address:

Vice President:

Full Name:

Preferred Name (optional):

Preferred Pronouns:

Phone Number:

Email Address:

Treasurer:

Full Name:



Preferred Name (optional):

Preferred Pronouns:

Phone Number:

Email Address:

Secretary:

Full Name:

Preferred Name (optional):

Preferred Pronouns:

Phone Number:

Email Address:

Mission Alignment:

Please provide a detailed statement (300 words or less) explaining why you believe in YSE's mission and how you plan to contribute to achieving it as a chapter?

Chapter Organization

The following questions aim for you to critically think about synthesizing a plan for the chapter you are going to launch. This will ensure your launch next semester will be successful for the general population. It is understandable to feel overwhelmed; however, you should also feel proud that you are going to become leaders in this committee. Do not hesitate to reach out to Laksh Dhir (ldhir.yse@gmail.com) with any questions.

Here is a space to write any questions as you go through with this document. Please email ldhir.yse@gmail.com all the questions at once so we can help you most effectively:



[Insert Here]

Have you set-up a meeting with advisors?

Not Started

Have you reviewed the chapter constitution on the Student Org Website?

Not Started

Do you have access to the student management system?

Not Started

Have you reviewed the goals in the Student Management System?

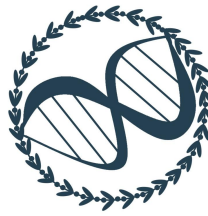
Not Started

Have you explored the resources offered in the Student Organization Websites such as 1 and 2?

Not Started

Has the President and Treasurer completed any required trainings?

Not Started



What will be the methods the chapter executives will use to communicate with each other FORMALLY and INFORMALLY?

[Insert Answer]

Where will the chapter executive board organize files?

[Insert Answer]

How will the General Body Members (GBM) be able to ask questions and communicate (e.g. YSE email, GroupMe, etc)?

[Insert Answer]

How will YSE at your school communicate updates and opportunities to its members (e.g. newsletter, GroupMe, Website, Instagram, Facebook, LinkedIn, etc)?

[Insert Answer]

What marketing techniques will YSE at your school use to interact with the audience and expand (e.g. put up flyers, speak at lectures, contact your school's newsletters, social media, do tabling, advertise on your school's databases, etc)?

[Insert Answer]

Will you have any tangible advertising material that you will use to keep current members and obtain new (e.g. t-shirts, sweatshirts, pants, pens, pins, folders, bags, etc).



[Insert Answer]

What grants will you apply for and what are their deadlines (e.g. programming funds, operating funds, USG grants, etc)?

[Insert Answer]

Apart from your main project, briefly describe 3 events that YSE at your school can do in and/or outside its meetings?

[Insert Answer]

What other executive positions will you recruit people for? What are the positions? Are you going to have any sub-committees?

[Insert Answer]

How are you going to elect people for these positions (e.g. interview-based, elections, etc)? Is the process going to be the same for the President, Vice President, Treasurer, and Secretary?

[Insert Answer]

If you are going to do elections, how will they work? When are they going to happen?

[Insert Answer]

When, where, what length, and how frequently will executive meetings occur?



[Insert Answer]

Are you going to collect dues? If so, how much? How will you keep track of who paid dues and who did not? Where will the dues be stored (e.g. Venmo, bank account, Zelle, PayPal, GoFundMe, etc)?

[Insert Answer]

When can members join your YSE chapter?

[Insert Answer]

Are all members going to be just members or will they have a deeper role (tip: we seek to have a general body base where everyone has a position beyond just a “member”)?

[Insert Answer]

When, where, what length, and how frequently will general body meetings occur?

[Insert Answer]

How much money do you aim to raise for the Youth for STEM Equity nonprofit?

[Insert Answer]



What are the names of 3 student organizations on your campus that you will seek to partner in the coming year?

[Insert Answer]

What methods will you employ to attract more members?

[Insert Answer]

Project Proposal

Please submit a comprehensive project proposal that aligns with YSE's mission and core values (Education, Equity, and Engagement). Your proposal should be innovative, actionable, and tailored to enhance YSE's mission. This is what the YSE at your school will be working towards overarchingly for this coming year.

Important Note: This proposal must be original work. Please be advised that this application will be run through a plagiarism checker and assessed thoroughly to ensure authenticity.

Include the following sections in your proposal:

Title:

[Your Proposal Title]

Executive Summary:

[Summarize the key objectives and expected outcomes of your project. For example, "Our Stories & STEM project aims to introduce K-8 children to STEM concepts through engaging storytelling sessions at the Columbus Metropolitan Dublin Library Branch. By the end of the academic year, we aim to have engaged 100+ K-8 children in interactive STEM activities, fostering their love for literature and STEM..."]

**Project Description:**

[Describe the purpose, goals, and expected impact of your project. Explain how it supports YSE's mission and who the project will benefit. For instance, "Our project will strengthen YSE's partnership with the Columbus Metropolitan Dublin Library Branch, promoting literature appreciation and interactive STEM learning. This initiative aligns perfectly with our mission of inclusivity as it provides free STEM engagement opportunities to learners of all backgrounds..."]

Implementation Plan:

[Outline a detailed step-by-step plan for executing your project, including timelines, milestones, and the resources required. Specify the roles and responsibilities of the President and Vice President in project execution. For example, "The President will oversee the coordination with the library, while the Vice President will lead volunteer recruitment and training. We will conduct Stories & STEM sessions biweekly for two hours, ensuring consistent engagement..."]

Evaluation and Metrics:

[Explain how you will measure and evaluate the success of your project. Identify key performance indicators (KPIs) and metrics. For instance, "We will measure success by tracking the number of children attending each session, collecting feedback from participants, and assessing their understanding of STEM concepts through post-session discussions..."]

Sustainability and Long-Term Impact:

[Discuss how your project will be sustained beyond the initial phase and its potential long-term impact on YSE and the your school's community. Provide examples of potential partnerships or funding sources. For example, "To ensure sustainability, we will explore grant opportunities, library collaborations, and student engagement. The long-term impact will be seen in the continued growth of STEM interest among K-8 children and strengthened community ties..."]

Budget:

[Provide a detailed budget estimate for your project, including itemized expenses and potential funding sources. For instance, "The estimated budget for our project is \$1,000, which includes materials, volunteer training, and promotional materials. We plan to secure



funding through grants, library partnerships, and community donations, ensuring no cost to the library or participants...”]

Appendices (Optional):

[Include any additional materials, data, or references that support your proposal.]

Declaration

I, President, hereby affirm that all the information provided in this proposal is authentic and original work of this YSE chapter’s Executive Board. I understand that this proposal will be subjected to thorough investigation to ensure its originality.

- Signature: [Your Digital Signature - Typing your full name here acts as your signature]
- Date: [Current Date]

This detailed project proposal form will help Youth for STEM Equity identify how this chapter will develop and execute innovative projects that contribute to STEM equity and engagement at your school.

Thank you for your hard work!



Branding - Marketing and Media Relations

Name: Youth for STEM Equity

Core Principles:

- Equity
- Engagement
- Education

Slogan: Striving To Empower Minds

CTA: UNLOCK CURIOSITY, ESCAPE STEM INEQUITY

Logos:  Logos

YSE Photo Album: <https://photos.app.goo.gl/3aopHextSz7ExsSX8>

Mission Statement:

Youth for STEM Equity (YSE) is directed to be a student-led, non-profit organization based in Columbus, Ohio that works towards proliferating academic opportunities available to individuals through interactive and gamified models of learning. YSE uses evidence-based practices for increased engagement within the STEM field through reduction in racism and discrimination. The organization fosters diversity within the STEM community regardless of personal identity to enhance the growth of the international knowledge economy. Moreover, YSE aims to shift the traditional perspectives on STEM that regard it as just a quantitative field of analysis. STEM is more than just molecules and numbers, it is history, literature, and art; it is you and me.

Purpose:

Youth for STEM Equity is directed to be a student-led, non-profit organization based in Dublin, Ohio that works towards proliferating academic opportunities available to individuals, allowing for increased engagement within the STEM field, by reducing racism and discrimination through arduous activism, essential education, and influential initiatives. We want to foster diversity within the STEM community regardless of personal identity to enhance the growth of the international knowledge economy.

Fonts



- **Headings/Subheadings:** League Spartan, Verdana
- **Subheadings/Text:** Kollektif, IBM Plex Serif
- **Subheadings:** Glacial Indifference, Robotto, Nunito, and Glory

Neutral Colors:

Blank: #000000	White: #ffffff	Gray: #8C8C8B

Brand Colors:

Blue: #254151	Green: #45B29D	Yellow: #F4CE50	Red: #D55342



Youth for STEM Equity Volunteer Form

We are so excited you are interested in volunteering with Youth for STEM Equity! Please fill out this simple Volunteer Form to #jointheYSEmission.

Personal Information:

Full Name:

Preferred Name:

Preferred Pronouns:

Email Address:

Phone Number:

Year of Study:

Why do you want to volunteer for Youth for STEM Equity?

How do your values align with YSE's mission?

What new ideas will you implement into this YSE chapter?



Activity Approval Form

Please fill this Activity Approval Form and email a pdf to your Chapter Overseer to receive approval for the activity. Once approved, you may initiate the execution of the activity.

What is the activity/ event you would like to propose? Provide a brief description:

What materials do you need for this activity? How do you plan on obtaining these?

How will this activity/event align with YSE's mission and values?

Is there anything you need from us?

Sig. of Chapter President

Sig. of YSE Executive Board Member



What Does a Monthly Meeting Look Like?

To be considered an active YSE chapter, it is required that you hold at least a monthly meeting. What you do in these meetings, however, is mostly up to you as long as it follows YSE's mission and goals! Below are some potential ideas to get you started!

Industry Immersion Trips: Some meetings can be held to plan various Industry Immersion trips to places like hospitals, tech hubs, corporations, and more! The list is quite endless. Though this would take planning through your school and a small budget, you can look into avenues for getting it funded. This would be a great immersive experience for students who are interested in going into a certain field as their career!

Round Table Discussion: A round table discussion can be creatively explored in numerous ways. For example, you could hold a small debate on a STEM-related topic, have presentations, or even have guest speakers come in. Most professionals are more than willing to share a bit of their time and knowledge to aid the next generation of community leaders, so don't be afraid to reach out!

Monthly Themes: An interesting idea that could be implemented into your chapter is monthly themes. Each month, your chapter could choose a different theme such as "College Readiness," "Internship and Interview Skills," or "Make a Difference using Math." Having a theme will make it simpler to decide on activities and meeting agendas, and can also target various people with different interests at your school!

Projects: Projects can be both short and long-term. For example, some projects such as creating "STEM care packages" to be donated to underprivileged school



districts can be an example of a short-term project whereas long-term projects such as doing free STEM programming at local school districts may entail more time and effort to pull off. If this is something that interests your chapter, weekly, biweekly, or monthly meetings could be dedicated to brainstorming and executing STEM-related projects in your community!

Other Ideas: Be sure to try to involve as many people in your school as possible!

Here are a few examples:

- ❖ Host a School-wide fundraiser for a STEM-related project or cause
- ❖ Involve your school's Photography club by partnering with them to take headshots for LinkedIn
- ❖ Plan and conduct a school-wide STEM-related event
- ❖ Partner with your school's Yearbook Club to highlight some "STEM stars" in your school who have created or have an idea for an extraordinary STEM creation or have helped the STEM community in some way

These are just a few ideas to get your creative juices flowing!

Stick to the Chapter's Purpose!: When thinking about what type of chapter meetings you would like to host, be sure that you stick with your specific chapter's purpose (middle school, high school, college). Besides that, Youth for STEM Equity wants you to be creative and have your own twists on what STEM can really be. STEM is not only Science, Technology, Engineering, and Mathematics, it can be art, music, community service, inventions, and anything you can imagine!



Chapter Progress Report Outline

Please make a copy of this outline to create your half-yearly Progress Reports. Please email a pdf to the YSE non-profit.

[INSERT CHAPTER NAME] Progress Report

Date: [INSERT]

Updates and Projects Conducted (add more bullet points as needed)

#1: [INSERT NAME]

- Successes
- Areas for Improvement

#2: [INSERT NAME]

- Successes
- Areas for Improvement

Additional Information & Notes

- Put any additional advancements you achieved, progress you made, or information found out about that is not related to your updates and projects.

Evaluation

- Did you have any fallbacks? What can you do to improve? How can you work better?

Future Projections

- List any future project ideas you may have and a short description of what they are.



Chapter Progress Report Outline for General Body Meetings

This Progress Report Outline is for your Secretary to fill out every time there is a General Body Meeting. The purpose of this Progress Report is for your Chapter to have a general idea of what occurred in the meeting that week, people were in attendance, etc.

Meeting Agends:

- This bullet point list should be filled out prior to the meeting with the agenda of what needs to be done/ discussed.

Number of Members in Attendance: _____

Discussions in Meeting:

- Please list any important ideas that were shared during the meeting that you would like to refer to later. Essentially, this should be a running list/ transcript throughout the entirety of the meeting.
- This can take up a lot of space, so feel free to extend the size of this Chapter Progress Report as it need not be only 1 page long.

New Business:

- List new ideas/ partnership. This could also be a space to list future projections.

Guest Speakers:

- Please list the name and occupation of any guest speakers and key takeaways.

Upcoming:

- List upcoming events or deadloies in bullet point format.

Action Items:

- Create a list of action items for both General Body members and Executive Baord members to have completed by next meeting to ensure progress.



College Chapter: STEMscapes!

Now that you have made it this far into the manual, it is time to see what Youth for STEM Equity's college chapters are expected to do! First, you must understand the basics: **What really is a STEMscape?**

Youth for STEM Equity has come up with a novel approach to continue classroom engagement, enhance long-term content retention rates, and promote student-teacher development.

A STEMscape is a multidisciplinary STEM escape room that promotes a puzzle-based system of education. Those from lower socioeconomic regions are deterred from STEM fields due to a lack of accessibility and knowledge. STEMscape helps to close the gap with its uniqueness and with its adaptability within various settings and education levels. Market research suggests collaborative learning with competitive incentive aids in cognitive maturity and information retention than other learning models. YSE aims to meet its mission by providing free STEM escape rooms to underdeveloped communities through an advertisement-freemium model, which coordinates sales from companies with marketing interests, grants, STEM kits, and more.

The college chapter plays a huge role in making this model possible by:

- ❖ collaborating with nearby school districts to develop and launch Escape rooms
- ❖ carrying out teacher training
- ❖ executing "Escape rooms in a Box" designs

Before jumping into what each of those responsibilities entail, we will give you an overview about STEMscapes and how the idea originated!



The Idea Behind STEMscapes

When Youth for STEM Equity's team was going into product differentiation, we quickly came upon some jarring statistics that sprouted the idea of STEMscapes:

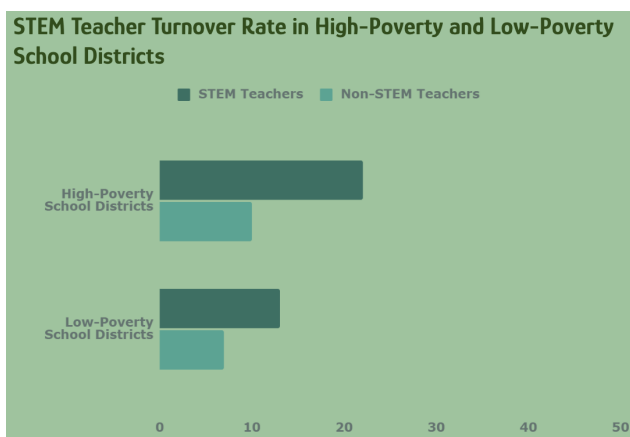
- ❖ **1 million STEM jobs out of 3.5 million projected to be unfilled by 2025.**
- ❖ **Only 18 percent of minority college students earned a STEM degree after entering with a STEM-intended focus.**

We also came upon a problem that many have heard of, but do not understand the severity of: **teacher turnover and teacher attrition rates**. Teacher turnover means that the teacher moves to a different school and teacher attrition means that the teacher chooses a whole new career path altogether. But why does this happen? A major factor that causes teacher turnover are their working conditions. A lot of the teachers that work in Title 1 schools are **underpaid, understaffed, have little to know materials and facilities, and have no administrative help**.

Here are some statistics we found that left an impact on us:

- ❖ **According to Goldring et al. (2014), in the 2011-12 school year, there were attrition and turnover rates of 10% and 22% in high-poverty school districts in comparison to attrition and turn over rates of 7% and 13% in low-poverty school-districts.**
- ❖ **Urban districts spend on average \$20,000 in recruitment while rural districts spend \$9,000, which is lost when a teacher leaves in 1-2 years.**

Thus, providing teachers with this necessary support and thereby increasing student-teacher development will reduce teacher turnover and attrition rates! So how can we do this? STEMscapes!





Partnering with School Districts

The first step in launching STEMscapes is by partnering with local school districts. Eventually, we would like the chapter to shift their focus to underprivileged Title 1 school districts. Here are some steps you can take in order to achieve this:

- ❖ **Cold emailing**— everything can start with an email. Be sure to introduce yourself and remain professional but friendly in your tone. Cole emailed as many school principals, superintendents, or other people with high authority asking to set up a meeting to discuss the possibility of introducing STEMscapes to their school.
- ❖ **Elevator Pitch**— Practice an elevator pitch several times so that you know you can confidently talk about STEMscapes to anyone that may ask you. You never know when you will be presented with an opportunity!
- ❖ **Connections**— At the inception of your chapter, it might be easier to reach out to teachers that you have had in the past or that you know of. Once you get the ball rolling, however, there are no limits to what you could do!
- ❖ **Organize**— Be organized with the schools you reach out to, the contact person email/phone number, and whether they are interested or not. The best way to do this would probably be through Google Sheets. Additionally, create a database of future “target schools” and a list of Title 1 School districts that you could potentially reach out to in the future.
 - Remember, it is important to keep all your files organized. Some options include but are not limited to **Google Drive, OneDrive, or Dropbox.**
 - **Here are some relevant folders you could include:**
 - Weekly Progress Reports, Network, Financial Planning, Departmental Training, Brand Development, Budget, Technology, Social Media, and more!



Launching STEM Escape Rooms

Here are some things to keep in mind while designing your own escape room!

On average, planning and executing a STEMscape will take around **15 hours**. There is a lot of logistics and planning that goes into it as well. Here is an example of a STEMscape that Youth for STEM Equity Recently launched called “Mission to Mars!”

 YSE STEMSCAPE MASTER

Learning Practices:

To maximize the learning and retention potential of a STEM escape room, it is essential to incorporate the following evidence-based practices:

- ❖ **Active Learning:** Develop puzzles and challenges that require participants to actively interact with STEM concepts through experimentation, exploration, and problem-solving (Bonwell & Eison, 1991).
- ❖ **Collaborative Learning:** Emphasize teamwork by structuring puzzles that necessitate cooperation, communication, and the sharing of ideas among participants (Johnson & Johnson, 1999).
- ❖ **Contextual Learning:** Ensure that puzzles are embedded within real-world contexts or scenarios, underscoring the practical applications of STEM concepts (Lave & Wenger, 1991).
- ❖ **Feedback Mechanisms:** Provide immediate feedback, either through clues, hints, or facilitator guidance, to enhance learning and problem-solving skills (Hattie & Timperley, 2007).



Average Costs:

Costs can fluctuate significantly based on several factors, including the complexity of the puzzles, materials used, and the number of participants. A rough estimate might range from \$100 - \$500 (small scale) or \$1000 - \$3,000 (large scale) for a single event, accounting for expenses related to materials, set construction, scale, and facilitator fees. Costs may also vary by geographic region.

Engagement Strategies for Learners:

To ensure that the STEM escape room is a highly engaging and enjoyable experience for participants, several strategies can be implemented:

- ❖ **Engaging Storyline:** Develop a captivating narrative that intricately weaves STEM challenges into an intriguing plot, motivating participants to solve puzzles to uncover the secrets of the storyline.
- ❖ **Immersive Environment:** Utilize lighting, sound effects, thematic decorations, and visual stimuli to create an immersive atmosphere that immerses participants in the adventure.
- ❖ **Variety:** Incorporate a diverse range of puzzles, hands-on experiments, and challenges to cater to different learning preferences and maintain sustained engagement throughout the experience.
- ❖ **Rewards and Recognition:** Offer incentives such as certificates of accomplishment, small prizes, or exclusive access to STEM-related resources to participants upon successfully escaping, celebrating their achievements and fostering motivation.



Data Collection and Assessment:

A robust assessment strategy is essential to evaluate the educational impact of the STEM escape room experience and gain insights into participant experiences. To this end, comprehensive data collection methods can be implemented:

- ❖ **Pre and Post-Game Surveys:** Administer surveys to participants before and after the experience to quantitatively measure changes in STEM knowledge, attitudes, and self-efficacy.
- ❖ **Observations:** Deploy trained facilitators to observe participant interactions, problem-solving processes, teamwork dynamics, and engagement levels during the escape room, capturing qualitative data.
- ❖ **Completion Time:** Record the time taken by teams to successfully complete the escape room, providing insights into their problem-solving efficiency and teamwork effectiveness.
- ❖ **Feedback Forms and Debriefs:** Distribute structured feedback forms and conduct debrief sessions with participants to collect their reflections on the experience, including perceived learning gains, enjoyment, and recommendations for improvement.
- ❖ **Learning Artifacts:** Encourage participants to document their progress, findings, and solutions on whiteboards or digital displays, which can be collected and analyzed post-event.
- ❖ **Content Assessments:** Integrate pre-designed assessments or quizzes related to STEM concepts covered in the escape room to measure learning outcomes directly.



Here is a comprehensive list of bullet points to summarize the previous information:

- Come up with a creative idea that does not fully rely on the hard STEM topics, but also other more unconventional STEM topics like Neuroscience, Psychology, and more
- Start with a draft of your idea, and come up with 2-3 stations with experiments, games, or puzzles that will allow students to immerse themselves in that field of knowledge
 - **Be sure to make the idea one that is in the scope of learning of the targeted age-group**
- Start coming up with interactive and catchy clues as seen in “Mission to Mars”.
- Create a logistics document and calculate the average cost of materials, where to obtain the materials, shipping time, etc. Remember, a small scale escape room for about 30 children should only cost about \$100 - \$120.
- Since Youth for STEM Equity is continuously trying to improve towards what is best supporting the children, schools, and teachers, it is vital that you create pre and post surveys, feedback forms, and anything else you think can help collect data.
- Finally, since learning is our utmost priority, be sure to debrief the students and provide some sort of informational flier at the end of the Escape Room

Executing an escape room takes lots of planning and collaboration, so be sure to read through all the steps thoroughly and reach out to contact.yfse@gmail.com if you encounter any problems!



Teacher Training & “Escape Rooms in a Box” Initiative

Eventually, Youth for STEM Equity chapters will be expected to provide “teacher training”, which is essentially transferring all the skills you have learned to educate teachers on how to create an Escape room designed to fit their curriculum. By doing this, the escape room that used to be supplementary learning turns into complementary learning, complementary to the curriculum for that grade-level.

Eventually, to standardize Youth for STEM Equity teacher training, teacher training modules will be created so that teachers learn the same information without it being hands-on from the university chapter.

Looking into the future, the chapter will eventually create “Escape Rooms in a Box” which will contain all the necessary equipment for a teacher to set-up an escape room in their classrooms.

The idea is that teachers will send their curriculum and concepts they would like to teach ahead of time, and the Youth for STEM Equity college chapter would have to collaborate and formulate an Escape Room that teaches those concepts, package all items in a box, and ship it to that teacher.



How Should you Fundraise?

Fundraising properly is essential to running a chapter. The next few pages will go into the key fundraising ideas and concepts borrowed from the document made by Ohio State University's Office of Student Life.

Ethics Behind Fundraising:

- ❖ **Understand the difference between fundraising and philanthropy:** Fundraising is raising funds to benefit your own organization whereas philanthropy is raising money for the greater good. However, fundraising money for your organization can still play a major role for the greater good.
- ❖ **Use of funds raised:** Funds raised should only be used towards the purpose they were said to be used for and nothing else.

Successful Fundraising Tips:

- **Understand the need:** Be clear on how much money you actually need for the successful execution of your chapter's projects
- **Explain your cause:** Asking for funds can be uncomfortable and difficult. Be sure you are able to explain your cause to potential donors.
- **Be creative:** There is no wrong way to fundraise! Consider organizing a fundraiser that can also be beneficial to people in your community such as lawn mowing, dog walking, and more.
- **Be organized:** It is vital that all the funds are tracked and that your financial department remains organized. Some ways to do this include but are not limited to starting shared drives or creating tangible folders with the chapter's executive team.
- **Publicize:** Get in contact with other organizations at your school to do collaborations or reach out to local news and radio channels to make Youth for STEM Equity well-known in your community.



Another effective fundraising method is **partnering with local businesses**. Lots of restaurants host **food service fundraisers**. Additionally, volunteers in your chapter can clean-up and work at concession stands at **local sporting events**. The list is endless! Use your **creativity, skills, and local resources**, and we are certain that you will be able to raise lots of funds for your chapter!

General Fundraising Ideas: Here are some general fundraising ideas provided by Office of Student Life at the Ohio State University where the first Youth for STEM Equity Chapter was started. The original link is provided here:
<https://activities.osu.edu/posts/documents/fundraising-resource-for-student-orgs.pdf>

- ❖ **White Elephant Auction:** Solicit members of your organization to bring items that they no longer use. These items can be auctioned off during an organization meeting.
- ❖ **One in a Million Penny Collection:** At the beginning of the year, tell organization members that the organization wants to save a million pennies by a certain date. A collection receptacle must be secured so organization members can donate their pennies or loose change. Every time the organization gathers, they can pass the penny can around, so members can contribute their extra pennies. The organization can ask other organizations to do the same. If your organization is able to gather a million pennies, it will raise \$10,000.
- ❖ **Rec Night in the Gym:** Set up a variety of events — such as volleyball, basketball, ping-pong, giant twister, wiffle ball, nerf football, music, and refreshments — and invite students, members of the community, and local high school students to participate. Charge a small admission fee for the event.
- ❖ **Gift-Wrap:** Offer a holiday gift-wrapping service on campus for students, faculty, and administrators. Charge a fee for the service. Trash-A-Thon: Get financial pledges from members of the community for every pound of trash your organization picks up. Get several large trucks, give your members



gloves and trash bags, and find a dirty roadside. This is both a service project and a fundraiser.

- ❖ **Tax Return Sale:** On the last day for people to mail their tax returns, there is always a rush at the post office. Find a spot at the post office to sell food — perhaps hamburgers, hot dogs, and fries. Contact the post office to determine the feasibility of this project.
- ❖ **Candy Sales:** Contact a fundraising company to organize a candy sale fundraiser.
- ❖ **Bag it at the Grocery Store:** Contact your local grocery store, and ask if your organization can bag and carry groceries for their customers for one week. Post a banner at the store explaining that all contributions will be donated to your cause.
- ❖ **Sponsor a Lip Sync Contest:** Perhaps make this an inter-organizational competition, in which residence hall groups and other student organizations can compete to see who has the best lip sync performance. You could charge the community and student body an admission fee and charge an entry fee for participants.
- ❖ **Flea Market:** Use one of the college or university's parking lots for a flea market. Many people in the community will hold a rummage sale sometime this year. Your organization can convince them to have this garage sale on your school parking lot. Divide the space into small areas that people can rent for a fee and sell their goods. Instead of chasing down different addresses, the shoppers can come to one place — your campus.
Volleyball/Cornhole Tournament: Organize an inter-organization competition. Invite residence hall groups and other student organizations to participate. Offer a grand prize for the winner. Charge an entry fee for each group that participates.
- ❖ **Car washing at area dealerships:** Someone has to wash the cars at area dealerships after it rains. Why can't it be your club or organization? Contact local dealerships to see if they would be willing to pay your club to wash their cars. It could save them money and they would be helping to enrich the campus community by contributing to your organization.



- ❖ **Yard Sale:** Have each member of your organization clean out their closets and contribute the items they no longer want for a yard sale that would benefit the club. The cost for the event would be for the advertising and a time commitment from each member to mind the store as well as contribution of items to sell. A yard sale can help your club raise money and help your members get rid of those hideous gifts they got years ago and never use.
- ❖ **Yogurt/Ice Cream night:** Contact local ice cream parlors or yogurt shops to see if they would be willing to give you a portion of their profits for every customer you bring in on a given night. The members of your club can have fun socializing and the shop will gain publicity and name recognition on the university campus. No one loses.
- ❖ **T-SHIRT SALES:** Your club can also raise money by designing and selling Tshirts.
- ❖ **Sports Tournament:** Setting up a sports tournament such as a softball derby can be great fun and good way to raise money. Invite other clubs or organizations on campus or even ask local groups to participate and charge an entrance fee. Your club can make money and have a great time playing a sport.
- ❖ **[-----] -a-Thons:** bike-a-thon (pledges for number of miles/laps ridden) bowl-a-thon (pledges for number of pins knocked down) dance-a-thon (pledges for number of minutes/hours danced) free throw-a-thon (pledges for number of free-throws made) jog-a-thon (pledges for number of miles/laps jogged) rock-a-thon (pledges for number of hours in rocking chair) skate-a-thon (pledges for number of hours/laps ice or roller skated) swim-a-thon (pledges for number of laps swam) walk-a-thon (pledges for number of miles/laps walked) etc.-a-thon (pledges for number ofyou get the idea)
- ❖ **Car Wash:** hang litterbag with anti-impaired driving messages in every car you wash. You can also place educational pamphlets on the seat of the car. Running and
- ❖ **Walking Events:** use impaired driving statistics (or some other statistic) to tie with event. As an example, a 10-k run participant will take about 6,000



strides, which is roughly equivalent to the number of impaired driving deaths in five months, so every stride represents a traffic fatality due to impaired driving.

- ❖ **Hearts Marathon:** For this fundraiser, the students play the card game "hearts" for 24 consecutive hours. (You could probably use any card game you wanted— as long as it was the same card game for 24 hours.) You solicit pledges per point accrued for each player. For example, someone signs up to pledge one penny per point and if the student earns 2,000 points during the 24 hours, the total pledge is \$20.
- ❖ **Penny Parade:** About four to six months before your event, divide your group into two teams. Give each team a large container and tell them that the group with the most pennies in their container one or two weeks before the event will be declared the winner. The losing team must serve the winners at a special dinner in their honor.
- ❖ **Balloon-O-Grams:** Basically, a balloon-o-gram is a telegram with balloons. Anyone could order a balloon-o-gram at any time. The deliverer would take a bunch of five to six balloons, a card and sing a song for the receiver. The cost for the balloon-o-gram was on a donation basis. Miniature Golf Tournament: Reserve a miniature golf course for your group. Have each student ask people to sponsor him or her per hole they play. (.10¢ per hole.) Play 100 holes in two hours or as many as you can do in two hours. Students can raise \$100.00 by just getting 10 people to sponsor them at .10¢ per hole.

Cold-calling Tips:

- ❖ Do some background research about the place/ person you are trying to contact.
- ❖ Jot down what you are going to speak about so that you sound professional.
- ❖ Give a short explanation of what you were intending to call about, and be sure to ask if this would be a convenient time.
- ❖ Leave your contact information for future correspondences.
- ❖ Make sure to call at least 2 weeks in advance!
- ❖ Most importantly, be polite and thank them for their time.



All About Social Media!

Social Media is the key to leaving a good impression in your community. Below we will give you some tips and tricks to just that!

- ❖ It is recommended to have **Instagram** and **Facebook** at the minimum. However, if your chapter is feeling more creative, you can explore options like TikTok, X, and others.
- ❖ Ensure to mention in your bio that this is **“A Youth for STEM Equity Chapter at X school/university.”**
- ❖ Be sure to tag **@youthforstemequity** in your bio.
- ❖ It is important to have strong branding and to maintain font, style, and color scheme throughout
 - Reference **“Branding — Marketing and Media Relations”** for more information
- ❖ Some suggestions for what you can post on social media include but are not limited to **event updates, nonprofit updates, fundraisers, student spotlights, achievements, executive board, STEM events, etc.**