



THINK WRITE PUBLISH

SCIENCE & RELIGION

Fostering Faith & Supporting STEM



MUSEUM OF SCIENCE, BOSTON

EXPLORING COMPELLING NEW STORIES
★ AND THOUGHT PROVOKING IDEAS ★



FOSTERING FAITH AND SUPPORTING STEM: AN EDUCATOR WORKSHOP ON SCIENCE AND RELIGION

Museum of Science

PROJECT BACKGROUND

This public program was developed as part of a three-year project, *Think Write Publish—Science & Religion*. Through a series of programs, fellowships, and a writing competition, the project sought to explore the relationship and intersections between science and religion. Rejecting a common narrative that the two are necessarily at odds, this project explored a different proposition: that science and religion can reinforce each other to allow a more nuanced, profound, and rewarding experience of our world and our place in it.

The project resulted in 12 creative nonfiction stories, as well as five experimental public programs designed to promote productive conversations about the relationship of science and religion in museums and other cultural spaces. Each program was inspired by one of the project's creative nonfiction stories, and was designed for a different audience using an appropriate programmatic format. The public programs were held in communities across the United States: Phoenix, Arizona (led by Arizona State University); San Francisco, California (Children's Creativity Museum); Durham, North Carolina (Museum of Life and Science); Boston, Massachusetts (Museum of Science); and Saint Paul, Minnesota (Science Museum of Minnesota). In addition to providing a safe space for multiple and diverse audiences to consider the relationship of science and religion, a larger goal of the programmatic effort was to explore techniques for addressing potentially polarizing topics in ways that are constructive and build bridges among different perspectives and experiences.

CONTENTS

This package contains:

- Program overview document and supporting materials
- Summary of program evaluation findings

PROGRAM DESCRIPTION

Program title: *Fostering Faith and Supporting STEM: An Educator Workshop on Science and Religion*

Target audience: Formal and informal educators for 6th grade and up

Format: Educator professional development workshop

Setting: Museum classroom or event space

Length of program: 5 hours

Inspired by: *Angels Among Us*, a creative nonfiction story by Lisa Y. Garibay

Overview: The day-long workshop brings educators of many disciplines and faiths together for continuing conversations and collaboration. Participants hear from a panel of local

professionals, who have devoted their lives to both science and faith. Then, participants work together to create a collection of best practices, tools, and resources on teaching and discussing science in a faith-based environment.

Story summary: In *Angels Among Us*, Lisa Y. Garibay recalls her education at Loretto Academy, a Catholic high school on the US-Mexican borders attended by girls from both nations. The school excels at teaching science alongside religion. Sister Buffy Marie Boesen explains, "Since science is based on facts and reason and religion is based on faith, there does not seem to be a conflict to me. If there seems to be a conflict between beliefs and facts, it is the job of all of us as educators to help students understand religious beliefs are rooted in faith while science is rooted in what we know today."

Program goals: Participants will:

- Find the program to be interesting and relevant;
- Consider conversations about the relationship of science and religion to be timely and important;
- Experience insight(s) or new ideas about the relationship between science and religion;
- Identify best practices, tools, and resources to use when integrating science and religion in any educational setting.

ADVANCE PLANNING

Expert speakers: Identify guest presenters and experts. Start investigating possible speakers a few months in advance. This will give you time to identify a group of speakers with diverse perspectives and expertise. In addition, speakers are more likely to be available if you arrange for their participation early on. You might look for people who are part of local faith-based organizations and university programs. If possible, watch videos of potential speakers to learn about their speaking style. To create an inclusive and balanced program, arrange for a group of speakers who are not only demographically diverse, but diverse in their careers and faith.

Talk with each prospective speaker to ensure they are the right fit for the event, going over the event goals, agenda, and participants. Be sure each speaker is clear about his or her role and responsibility, and follow up with an email message capturing the key points of your conversation. A month or so before the event, schedule a final call or meeting with all of the speakers to discuss logistics and the angle on science and religion for their presentations.

We asked speakers to prepare a brief presentation of about 5 minutes, and to participate in the entire workshop, including small group discussions.

Promotion: Get the word out to educators about 2 months in advance of the event. In addition to your usual lines of communication to K-12 teachers, think of ways to reach educators who might not normally see your organization as a resource. For example, you might reach science teachers or homeschool groups through local networks or social media.

Logistics: Determine how many educators you can accommodate. Follow your organization's protocol to plan the rest of your event, including catering, floor plan, AV, volunteer/staff support, signs, and parking.

Evaluation: If you are evaluating your program, prepare your survey or other instrument and confirm your protocol.

Activity materials: Prepare materials, as indicated below. Prepare discussion points and/or questions to bring up in case the large group conversations lag.

MATERIALS & RESOURCES

Materials

- Participant contact information sheet (see example included in this packet)
- Pads of paper
- Pens
- Flip charts
- Markers
- Participant worksheets (see example included in this packet)
- Contact info sheets
- Slides (optional) (see example included in this packet)
- Computer and projector for slides (optional)
- Microphone and speakers (optional)
- Tables and chairs for participants (if possible, seat participants in small groups around tables)

SCHEDULE

Below is a sample schedule for a 5-hour workshop. This can be adjusted as needed to create a longer or shorter program.

9:00am–9:30am	Participant check-in and light breakfast	Program assistant
9:30am–9:45am	Welcome and introduction	Program lead
9:45am–9:55am	Reading from creative nonfiction story or other work	Author or program lead
9:55am–10:25am	Introductions and story sharing	Small groups
10:25am–11:05am	Presentations	Guest speakers
11:05am–11:30am	Questions and answers	Speakers, large group
11:30am–12:00pm	Discuss best practices	Small groups
12:00pm–12:45 pm	Lunch	Large group
12:45pm–1:25pm	Discuss tools and resources	Small group
1:25pm–1:55pm	Share tool and resource ideas	Large group
1:55pm–2:00pm	Closing thoughts; evaluation (optional)	Program lead, evaluator

PROGRAM FACILITATION

Set up:

- Room should have enough round tables and chairs for your participants
- Room should have a rectangular table with chairs at the front for speakers during Q&A
- Place worksheets, participant list, and pens at each roundtable for participants
- Have large flip-charts and markers ready off to the side for group discussions

Agenda:

Note: Program slides include suggestions in the notes section for the program lead to use when introducing each part of the program.

9:00am–9:30am	Participant check-in and light breakfast <ul style="list-style-type: none">- Have a table available for participants to check-in and receive a nametag.- Provide a light breakfast if funding allows.	Program assistant
9:30am–9:45am	Welcome and introduction <ul style="list-style-type: none">- Welcome guests and go over logistics.- Introduce project and show “Future of X” video.	Program lead
9:45am–9:55am	Reading from creative nonfiction story or other work <ul style="list-style-type: none">- Read a shortened version of “Angels Among Us” by Lisa Y. Garibay, or other relevant work.- Optional: create a picture slideshow to play while reading story.- Optional: Play video from Sister Buffy as another way to frame discussion.- Read through ground rules for discussion.	Author or program lead
9:55am–10:25am	Introductions and story sharing <ul style="list-style-type: none">- Program lead prompts tables to begin discussion by introducing themselves and sharing a short story about their own experiences.	Small groups
10:25am–11:05am	Presentations <ul style="list-style-type: none">- Introduce guest speakers before each of their presentations.- Presentations should be about 7-10 minutes each.	Guest speakers
11:05am–11:30am	Questions and answers <ul style="list-style-type: none">- Bring all of the guest speakers up to the table at the front of the room.- Lead a Q&A session by asking for questions from the participants.- Be prepared with questions in case the participants do not have any.	Speakers, large group
11:30am–12:00pm	Discuss best practices <ul style="list-style-type: none">- Invite guest speakers to return to their tables.	Small groups

	<ul style="list-style-type: none"> - Hand out one flip chart and marker per table (<i>this can also happen during Q&A if support staff is available to help</i>). - Introduce small group discussion. - Encourage participants to use worksheets and flip charts to collect ideas. - Set up Mindfulness Workshop Activities at separate tables during this time. 	
12:00pm–12:45 pm	<p>Lunch</p> <ul style="list-style-type: none"> - Participants have lunch and network. - Mindfulness Workshop Activities from the Children's Creativity Museum's TWP project are available to try on tables. 	Large group
12:45pm–1:25pm	<p>Discuss tools and resources</p> <ul style="list-style-type: none"> - Introduce small group discussion. - Encourage participants to use worksheets and flip charts to collect ideas. - Remind participants that they will have a chance to share what they talked about in their discussion. They should prepare to share in 1 minute what they discussed. 	Small group
1:25pm–1:55pm	<p>Share tool and resource ideas</p> <ul style="list-style-type: none"> - Introduce large group discussion. - Have each table share what they discussed for 1 minute each. - Open up the discussion for anyone to talk or ask more questions of the guest speakers. - Program lead should prepare prompting questions for the discussion to use if necessary. 	Large group
1:55pm–2:00pm	<p>Closing thoughts; evaluation (optional)</p> <ul style="list-style-type: none"> - Thank participants. - Remind participants to leave worksheets on the table. - <i>Optional: Invite participants to take part in a program evaluation survey.</i> 	Program lead, evaluator

Following the event:

- Collect worksheets and compile the individual responses into one document.
- Collect flip charts and compile the group responses into one document.
- Combine both results into one PDF and attach to a thank you email to participants.

CONTACT INFORMATION

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Inspired by an original creative nonfiction story, *Angels Among Us*, by Lisa Y. Garibay.

Museum Liaison for the project is Rae Ostman at Arizona State University.

Director of the project and programming is Michael Zirulnik at Arizona State University.

Program evaluation conducted by the University Office of Evaluation and Educational Effectiveness at Arizona State University.



STORIES OF SCIENCE & RELIGION

We asked: Can we bring new, compelling, and true stories about harmonies between science and religion into public discourse?

FOSTERING FAITH AND SUPPORTING STEM: MUSEUM OF SCIENCE

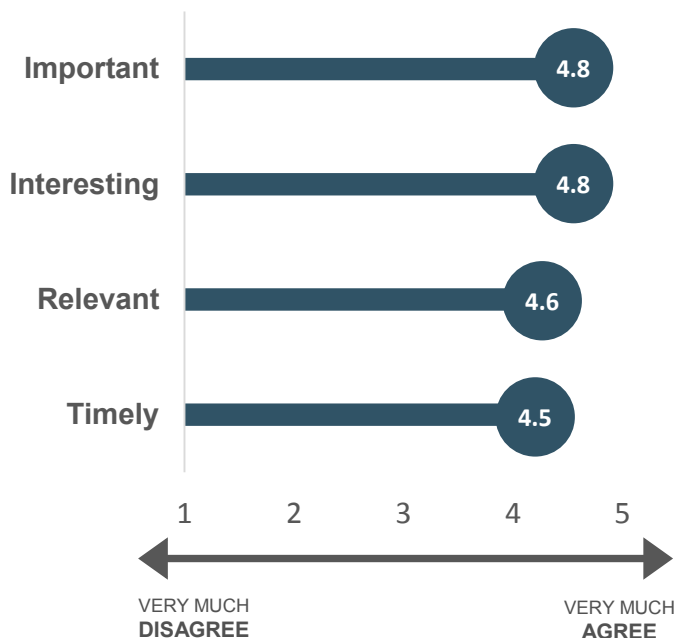
This day-long workshop brought together educators of many disciplines and faiths for conversations and collaboration. Participants heard from a panel of local professionals, who have devoted their lives to both science and faith. Participants worked together to create a collection of best practices, tools, and resources on teaching science in K-12 environments. This event was inspired by the narrative, *Angels Among Us*, by Think Write Publish fellow Lisa Y. Garibay.

I feel that because science is pushing the boundaries with ethics, that this topic is incredibly timely - stem cells, CRISPR, GMOs, climate change, human cloning - all have ethical implications. Conversation and exchange and respectful listening are key to resolving ethical issues."

-Workshop Participant

PARTICIPANT OUTCOMES AND IMPACT

Below we illustrate average agreement from attendees (n=17) on statements about conversations about science and religion. Most participants agreed that these conversations are **important** and **interesting**.



We thematically analyzed participants' written responses. The word cloud illustrates the themes that emerged from those responses. The **size** of the word is related to the **frequency** of the theme.



Fostering Faith and Supporting STEM: An Educator Workshop on Science and Religion

Use this worksheet to keep track of your notes and ideas during the workshop.

We will collect them at the end of the day to create a larger document to share with other educators. All worksheets will remain anonymous.

What questions do you have for our speakers?

What are some “**BEST PRACTICES**” for other educators to consider? How would you apply them in your educational setting? Think about any techniques or methods you, your fellow table members, or our speakers have used.

What are some “**TOOLS**” for other educators to consider? Think ways to engage with students in science and religion (activities, lesson plans, movies, discussion prompts etc.). What would you use in your educational setting?

What are some “**RESOURCES**” for other educators to consider when thinking about science and religion? Please provide any websites, books, movies, etc. you think would be useful for other educators.

What other thoughts or ideas do you would like to share?

Workshop Participants

Name	Email	Organization	Title

Fostering Faith and Supporting STEM

An Educator Workshop on Science & Religion



Welcome

Emily Hostetler, Museum of Science

Thank you all for coming to the workshop today created by the Museum of Science Boston, and thank you to the John Templeton Foundation for supporting this project that brought us all here to discuss such an important and interesting topic. Before we dive into the day, I wanted to start with just a few logistics.

- bathrooms
- if you need to make a call or use your phone, please step out of the room
- parking
- surveys at the end of the day

In your folders is a worksheet to fill out through out the day. We will use these to create a larger document to help other educators who were unable to attend today but still are interested in the topic. Please leave them on the table at the end of the day. We will send out a comprehensive list of what everyone wrote down on these sheets. There is also a list of participants with contact information if any of you want to connect after the workshop for continued conversations and collaboration. There is also a copy of todays agenda in your folders.

Project Introduction



— THINK WRITE PUBLISH —
SCIENCE & RELIGION
TRUE STORIES WELL TOLD

<https://scienceandreligion.thinkwritepublish.org/>

We were able to bring you all here today due to the Think Write Publish project - Science And Religion True Stories Well Told. This project brought a group of writers together to tell stories about the intersection of science and religion in their lives and publish them for the public. By pairing these stories with museums, we are able to create a variety of programs inspired by these stories that can reach a different audiences in a setting that allows for interaction and discussion among participants. One event was held at an

Agenda

9:00am - 9:30am	Participant Check-in and Breakfast in Café	
9:30 - 9:45am	Welcome and Project Introduction	
9:45 - 9:55am	"Angels Among Us" Excerpt	
9:55 - 10:25pm	Small Table Introductions and Story Sharing	Small Group
10:25 - 11:05am	Lightning Talks by Speakers	
11:05 - 11:30am	Speaker Panel Q & A	Speakers & Large Group
11:30 - 12:00pm	Focused Discussion on Best Practices	Small Group
12:00 - 12:45 pm	Break for Lunch	
12:45 - 1:05pm	Focused Discussion on Tools	Small Group
1:05pm - 1:25pm	Focused Discussion on Resources	Small Group
1:25 - 1:55pm	Large Group Discussion	Large Group
1:55pm	Closing thoughts, Evaluation	

UPDATE BASED ON YOUR EVENT

Angels Among Us

Lisa Garibay, TWP Fellow

***READ EXCERPT FROM ANGELS AMONG US* another option would be to send the published story before the event to participants and skip this section to allow for more time for discussion.**

Lisa Y. Garibay

Lisa is a storyteller focusing on borders and the people who transcend them. Films she produced have been nominated for Independent Spirit Awards and won film festivals. As a publicist, she represented major studios, Grammy nominees, technology entrepreneurs, and community-building nonprofits. Her creative nonfiction has been published in anthologies while her reporting on the people driving the most innovative movies and music of our time appeared in Backstage, The El Paso Times, Filmmaker Magazine, The San Francisco Bay Guardian, Written By, and many more. A recipient of the Sundance Institute Arts Writing Fellowship and Think Write Publish Science and Religion Fellowship, Lisa is also a marketing and editorial expert who has led communications for The University of Texas at El Paso, Film Independent, and NATPE. She is currently the public relations manager for UCLA's Division of Physical Sciences where she helps scientists take their stories out of the lab and out into the world.



Sister Buffy Boesen, President at Loretto Academy

One of the most influential people at Loretto Academy is Sister Buffy who has helped foster a space of excellent education and a strong faith among her students. Here she will share some of her practices.

Ground Rules for Discussion

- Respect others' opinions and ideas
- No interruptions – one person talks at a time
- Listen carefully to what others have to say
- It's ok to disagree with others
- Take part in the discussion
- Give everyone a chance to speak
- Keep comments brief and to the point

In order to create a space for fair discussion, it is important that we keep these ground rules in mind through out the conversations today.

Small Group Introductions

- Your Name and School or Organization
- What brought you here today?
- Share a short story or experience about science and religion in your life

Now we will begin with introductions at each of your tables. Please share your name and organization, what brought you here today, and if you are comfortable, share a short story of an experience of science and religion that has impacted your life.

Presentations

Speaker, *Title*

Speaker, *Title*

Speaker, *Title*

Speaker, *Title*

UPDATE THIS SLIDE WITH YOUR SPEAKERS

2 - 4 speakers is a good number. Be sure to adjust their speaking time based on how many speakers you have.

Introduce them with a one sentence bio

Let participants know they have a space on their worksheets to write down any questions they may have for the speakers.

Speaker Q & A

Speaker, *Title*

Speaker, *Title*

Speaker, *Title*

Speaker, *Title*

Extra questions in case there are not enough from participants (FEEL FREE TO ADD YOUR OWN):

“Have you had an interaction with a student, parent, or colleague on the topic of science and religion that began negatively, and you were able to turn it around? How did you handle that situation?”

“What do you think the future of science and religion looks like? What can we do to continue this sort of dialogue and who should be involved?”

Best Practices

30
minutes

HAND OUT FLIP CHARTS

Now we will begin the small group discussions. Please record what your group shares on your flip chart, and your individual thoughts on your worksheets. Remember we will be collecting both of these at the end of the day for a larger document we will share with all of you after the workshop.

Best Practices - what do you think is the best way to handle smoothly integrating or allowing science and religion to occur in the classroom or to handle conversations that might come up in the classroom? What would help students the most?

Best Practices

15

minutes

Best Practices - what do you think is the best way to handle smoothly integrating or allowing science and religion to occur in the classroom or to handle conversations that might come up in the classroom? What would help students the most?

Lunch!



During lunch, you may want to have some things available for the participants to try - for example, the mindfulness activities from the Children's Creativity Museum's TWP event (<https://scienceandreligion.thinkwritepublish.org/event/multisensory-mindfulness-exploring-neuroscience-and-mindfulness/>).

Tools

20
minutes

Tools - what are some tools educators can use to incorporate these subjects? For example, we have seen a forum and hands on activities so far... Were those useful? What other ways could you think of? What could students use?

Tools

10

minutes

Tools - what are some tools educators can use to incorporate these subjects? For example, we have seen a forum and hands on activities so far... Were those useful? What other ways could you think of? What could students use?

Resources

20
minutes

Resources - where can you find things that would be helpful for other teachers?
What would you want to have access too? What resource would be helpful for you?
For students?

Resources

10
minutes

Resources - where can you find things that would be helpful for other teachers?
What would you want to have access too? What resource would be helpful for you?
For students?

Group Discussion

Large group discussion for participants to share what they experienced at their tables.

Can anyone start by sharing out something from their "best practices" boards that stuck out to them?

Anything else that you think is important to share from your other discussions about tools and resources?



Thank you!

Thank you for participating in today's workshop! Please your worksheets on the table.

ONLY SAY BELOW IF YOU ARE HANDING OUT SURVEYS

Thank you for participating in today's workshop! As part of this project, we are working with a research and evaluation team to help improve and optimize this program. To do so, we would like to gather your feedback by asking you complete a short survey about your experience today. Please feel free to share your honest feedback, both positive and negative, which will help us make improvements. Your participation is voluntary, all your answers are confidential, and all the questions are optional.

Once we've completed this, you may leave the surveys on the table or hand them to myself or other staff in room as you leave. Please let me know if you have any questions and we greatly appreciate your help.



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TRUE STORIES WELL TOLD



JOHN TEMPLETON
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Consortium for Science,
Policy & Outcomes
at Arizona State University

**CREATIVE
NONFICTION**
True stories, well told.