***NOTE:** Please download a copy of this template for yourself. Rename the working copy before you begin your entries.*

First2_Network_Research_Immersives **PDSA Template — Cover Information**
How the First2 Network Collects and Uses Improvement Science Data Each Institutional Team submits a proposal to the First2 Network Improvement Science Team (IST) to conduct a PDSA cycle of data collection and analysis for each proposed activity. Through coaching sessions and process tools, the IST guides each institution to ensure their data collection cycle has clear "learning questions" and metrics to provide evidence. When the data are collected, the Institutional Team analyzes its findings and produces a local report and shares the de-identified data findings across the First2 Network. This sharing enables other institutions to uptake effective change ideas quickly.
Name of Tester:
Institutional Affiliation:
Working Group (if applicable):
PDSA Title *(see p 1 instructions)***:**
Change Idea: *(refer to the First2 Menu of Change Ideas)* Research Immersive Experience
Primary Driver: *(refer to the First2 Driver Diagram)* STEM students feel connected to STEM research, understand STEM career options and feel competent enough to pursue them.

Secondary Driver: *(refer to the First2 Driver Diagram)* Administrators and faculty coordinate to increase participation in research experiences for First2 students.
Date completed: *(Leave blank if PDSA has not yet been completed.)*
Is this an iteration of a previous high-quality PDSA?: **Yes** √ No □
If yes, please provide its title and a link to the Change Idea in the First2 Menu.

PDSA Template

Instructions for Completing PDSA Template This template is designed to support you in testing change ideas through PDSA cycles. It is organized by the 4 PDSA phases: PLAN, DO, STUDY, ACT. Use the instructions and prompts in the right column to complete the information requested in the left column.	
PDSA Cycle—PLAN SECTION	
PLAN (write in this column)	**Instructions (don't write in this column)**
Describe change Idea: *(refer to the First2 Menu of Change Ideas)* (*Adapted from description from linked PDSA*): A [[type/duration]] research immersive is planned for [[students]] by STEM faculty and undergraduate student mentors at [[institution]]. Activities include [[details specific to your program: e.g. lecture, presentations, and research activities to include collecting samples, keeping well-documented lab manuals, and creating a research poster]].	Your change idea should be a specific practice, activity, or behavior (or related set of behaviors), that your team believes will support the overall goal from the Driver Diagram. **Ask**: Is your change idea detailed enough such that someone new to the group could read your description and understand what the team is working on during this test? Consider the following: ● ***Who*** is going to do ***what****?* ● With ***whom*** are they going to do it?

	• ***Where*** will activities take place? • ***When*** will this happen? Include a timeline in your description.
Title your PDSA. Add the name of your institution to the end of the title. Research Immersive Experience, [[SEMESTER/Date]] - [[CAMPUS]]	Your title should describe briefly what you are testing. It can (and should) be short and simple. Example: *Summer Immersives Informal Community Time _Fairmont*
Refer to the First2 Driver Diagram and list the primary and secondary drivers that align with your PDSA. **Primary Driver #3:** STEM students feel connected to STEM research, understand STEM career options and feel competent enough to pursue them. **Secondary Driver:** Administrators and faculty coordinate to increase participation in research experiences for First2 students.	This is the main goal that your team is working toward and how it aligns with the First2 Driver Diagram. List the primary and secondary drivers from the diagram. Example: *STEM self-efficacy and motivation will increase among students who participate in authentic STEM experiences that begin early enough to have an impact on persistence.*
Enter one or more Learning Questions for your test. **Question 1:** How many of the students attended all planned sessions of the immersive experience? **Question 2:** How many of the students completed each component of the immersion? [*Be specific: e.g., completed a lab report*] **Question 3:** To what extent does the immersive experience increase feelings of belonging among STEM students?	Your Learning Question for this test should combine two things: (1) the change idea you are testing and (2) the intended outcome your team believes the change idea can improve. Example: *Will informal community-building time help participants develop relationships with peers and increase sense of belonging?* The intended outcome of the test should support the overall goal of the team from the Driver Diagram. In our ongoing example, the intended outcome of this test (developing relationships with peers and increasing

Question 4: To what extent does the immersive experience increase students' confidence in interacting with research faculty as measured by the First2 Network Summer Immersive Research Program Survey? **Question 5:** To what extent does the immersive experience increase students' awareness of STEM career options? **Question 6:** To what extent does participating in the immersive experience improve students' self-efficacy related to their STEM courses? **Question 7:** To what extent does the immersive experience impact STEM student persistence through their following year of college? [[Other campus-specific question]]	sense of belonging) supports the overall goal of increasing student motivation and persistence in STEM. Consider the following: What is an outcome you can reasonably achieve within this test of change?

Make one or more Predictions for each learning question. **Question 1**: [[specify number enrolled and number expected to complete all sessions]] of students who begin the research immersive will complete all planned sessions. **Question 2:** [[specify number enrolled and number expected to complete all sessions]] of students will complete each component of the research immersive including [[specific activities]]. **Question 3:** At least 80% of students who participate in the immersive experience will report increased feelings of belonging as measured by the Internship survey. **Question 4:** At least 80% of students who participate in the immersive experience will report increased confidence in interacting with research faculty as measured in the First2 Network Summer Immersive Research Program Survey. **Question 5:** At least 80% of students who participate in the immersive experience will report increased awareness of STEM career options and opportunities. **Question 6:** At least 80% of students who participate in the immersive experience will report increased self-efficacy as measured by the Motivated Strategies Learning Questionnaire (MSLQ). **Question 7:**-At least 80% of students who complete the immersion will remain in good standing (not on academic probation) and enrolled in their intended STEM major through the second semester following participation. ("state-wide" 1-year persistence rates among non-first gen is between 61-65%, first gen	Make one or more predictions about the results of the test. Your predictions should be measurable (you can gather data to confirm or disconfirm your predictions) and should relate back to your learning question for this test. Think of your prediction as reframing your Learning Question as a hypothesis, testing whether your team's change idea will result in improvement during this test. Example: *We predict that student participation in informal community-building time will help participants develop relationships with peers and increase sense of belonging.* **Make sure that:** ● Your predictions are measurable. ● You've noted whether Qualitative and/or Quantitative data will be used to assess the prediction. ● Your team has a clear idea for data needed to confirm or disconfirm your predictions.

Describe logistics around Implementation.

Immersive Experiences can be summer programs like the summer bridge program or an academic year program. Here describe the logistics of the program you are running.

1. How will you recruit students to your program to ensure that you are reaching first generation, or other under-represented students to participate? How do you recruit faculty
2. Where will the immersion program take place and over what time frame? Is this a summer bridge program for younger students, or an academic year program? How many days, hours, etc. will student participants be engaged with the immersion program (ex: three weeks over the summer, full days for the 15 days). Describe the schedule of activities linking them to the learning questions above.
3. Describe any training or mentoring that is planned for the student mentors, and or faculty.
4. Describe any pre-work, homework, and/or post-work that is planned for and/or required of student participants
5. Describe the interactions and organizational structure of the immersive experience: is it a one to one experience between faculty or grad student and our target student, or is it a group experience?
6. Describe the ways in which faculty and student mentors will be engaging with student participants.
7. Describe the nature of activities outside of the formal, structured nature of the immersive experience, if there are any (e.g., social, recreational, etc.).

Develop a detailed plan for how your team will implement the change idea during this test. Your logistics plan for implementation should consider all phases of the change idea: preparation, training, staffing, enacting, closeout, etc.

> Example: *We are going to assign a Community Event Coordinator from existing staff of each immersive experience to own primary responsibility for enacting the informal community time change idea. The Coordinator will survey participants one month in advance for activities they would want to participate in. Then, the Coordinator will calculate the five most popular preferences. For each preference, the Coordinator will calculate the (1) per-person and overall cost, (2) whether the entire cohort could participate, and (3) the feasibility of scheduling at a convenient time given the immersive experience requirements. [Continues…]*

Consider the following for implementation:

- *Who* is going to do *what?*
- With *whom* are they going to do it?
- *When* and *where* will it happen?
- What is needed to make this happen?

Provide links to any measurement instruments you plan to use (e.g., surveys) referring to the Measurement Examples listed in this spreadsheet **OR** submit attachments with this template using the same title: Example: *My PDSA_Fairmont_Survey1*

Describe logistics around Data Collection.

1. A [[daily/per-session/other]] attendance record will be kept by program coordinator(s) that also tracks each student's completion of key components throughout the immersion, including [[specific assignments/tasks]].
2. At the beginning of the program, program coordinator surveys all student participants using a standard pre-experience survey (belongingness survey, and the modified version of the Student Internship survey.)
3. A post-experience survey [[belongingness survey and modified Student Internship survey]] given to all participants will measure belongingness, STEM self-efficacy and career awareness growth.
4. [[Coordinator]] will review the survey responses on [[DATE]], two weeks following the immersion and send reminder [[emails/texts]] as a last attempt to get post-test survey data.
5. [[Coordinator]] will share with [[appropriate campus administrator]] the names of students who have given permission to have academic records accessed. That administrator will provide data on student academic standing [[time gap dependent on length of research immersive experience]] (on probation or not on academic probation) and enrollment status (enrolled in their intended STEM major [next semester/next academic year]], and [[any additional academic success measures desired by an institution]].

Develop a detailed plan for how your team will collect data during this test, including both process and outcome measures. Refer to the Primary Outcome Measures listed in this spreadsheet.

Decide what process measures you are going to collect and how the team is going to collect them. Process measures help you determine whether your plan is enacted as intended.

> Example: *We are going to measure how many informal social activities are scheduled for each immersive experience, track how many students attend each event, and track which students attend each event (to see if students who attend more activities have a greater sense of belonging).*

Decide what outcome measures you are going to collect and how the team is going to collect them. Outcome measures help you determine whether your Predictions will be confirmed or disconfirmed and help you answer your Learning Question.

> Example: *We are going to survey students at the beginning and end of each immersive experience about their (1) sense of belonging and (2) relationships with peers. We will find existing survey items that have already been tested with postsecondary students.*

Your data collection plan should include how you will collect the data (e.g., Google Form survey), where they will be stored (e.g., Google Drive folder), and who will have access to the data. Consider how you will protect people's privacy and keep their data confidential. Your team should upload data collection instruments (e.g., surveys) to a shared location.

Consider the following for data collection:

- *Who* is going to do *what?*
- With *whom* are they going to do it?
- *When* and *where* will it happen?
- What is needed to make this happen?
- Are you protecting the privacy of the people you are collecting data from?

Describe your required supplies, materials, and resources.	Describe what your team will need to implement the change idea and collect data. Refer to your team's description of the change idea and the two logistics sections above. Consider the following: ● What will your team need across all phases of the change idea: preparation, implementation, closeout? ● What will other stakeholders need: students, faculty, etc.? ● Consider non-physical needs: time, space, scheduling, access, etc.
1. Research activities materials: [[detail]]. 2. [[Belonging Scale end-of-immersion survey: add link or link to network-provided survey:]] First2 Network Summer Research Internship Program Survey 3. MSLQ self-efficacy survey. 4. Method for tracking daily attendance and completion of assigned tasks during immersion in an identifiable way. [[Add link or description]]. 5. [[Student end-of-semester survey that includes assessments for any institution-specific learning questions if needed]].	

PDSA Cycle—DO SECTION	
DO (write in this column)	**Instructions**
Describe what happened when implementing the test.	Refer to the Implementation Logistics section of your PLAN template for the key tasks that were supposed to occur. For each key implementation task, describe what actually happened (rather than what was supposed to happen). Describe anything that made either implementation or data collection harder or easier than planned. Ask yourselves: "Are we providing enough detail to understand whether the test was implemented as planned?" Consider the following for implementation: ● *Who* did *what*? ● With *whom* did they do it? ● *When* and *where* did it happen?

Describe what happened when collecting data.	Refer to the Data Collection Logistics section of your PLAN template for the key tasks that were supposed to occur. For each data collection task, describe what actually happened (rather than what was supposed to happen). Ask yourselves: "Did we describe what did (or did not) happen for each type of data we planned to collect?" Be certain to protect privacy, using aggregated group data and removing individual identifying information. Add any appendices of collected data to your institutional team's folder in the Google Drive. Consider the following for data collection: ● *What* data were collected? ● *Who* collected the data from *whom*? ● Did you collect the data *when* you planned to?
List anything that was unexpected or surprising.	Describe anything that happened during either implementation or data collection that was not anticipated. Consider the following: ● What differed from the PLAN template? ● Did you need different supplies, materials, training, supports, etc. from what you expected? ● Did you need different timing, scheduling, etc. from what you expected?

PDSA Cycle—STUDY SECTION	
STUDY (write in this column)	**Instructions**
Document what you observed about your data.	Refer to the Data Collection Logistics section of your PLAN template and the What Happened When Collecting Data section of your DO template for the data your team collected during this test. For each data source, review the findings as a team and provide time to share what people observed about the data. Observations should be low-inference statements that are explicitly tied to data. Example: *Our team saw that 20% of students marked 'Strongly Agree' to the question 'I have meaningful relationships with other students in my major' before the immersive experience. We also noticed that this number increased to 45% of students marking 'Strongly Agree' after the immersive experience.* Protect people's privacy when reviewing your data. Observations should focus on trends, themes, and group data and not individual data. If reviewing individual data is required, protect people's confidentiality by removing or replacing identifying information (e.g., "Student #1") Consider the following for observations: ● Are specific data points clearly identified in your observations? ● Are you adding extra interpretation or meaning beyond what the data indicate?
Document how you interpreted your data.	For each data source, review the findings as a team and provide time to share what people interpreted about the data. Interpretations should

	extend the thinking of the group beyond what the data immediately indicate while providing a clear rationale. Example: *We noticed that the number of students marking 'Strongly Agree' to the question 'I have meaningful relationships with other students in my major' increased from 20% to 45%. The events with the greatest attendance were the opening and closing events. The events in the middle of the program were sparsely attended. Therefore, we interpret the opening and closing events as being the most likely to have affected the change in survey results.* Consider the following for interpretations: ● How can you connect different pieces of data? ● Are your interpretations still grounded in the data even if they add new meaning?

Describe whether your prediction came true (in full or in part).	Refer to the Prediction section of your PLAN template for the predictions your team thought would result from the test. For each prediction, document whether the prediction was "Met in Full," "Met in Part," or "Not Met." Example: *We predicted that student participation in informal community-building time would help participants (1) develop relationships with peers and (2) increase their sense of belonging. The first prediction was "Met in Part." One piece of evidence supporting this is the number of students marking 'Strongly Agree' to the question 'I have meaningful relationships with other students in my major' increased from 20% before the immersive experience to 45% after the immersive experience. Another piece of evidence is… We marked this "Met in Part" instead of "Met in Full" as we expected to see greater increases than what the data showed. [Continues…]* Consider the following: ● What data from your data collection are you using to assess each prediction? Be specific. ● Do you have a consensus on whether the predictions were met?
Describe your team's key learnings from this test.	Ask yourself about the "why" behind the results of your predictions and your learning goal. If your team marked a prediction as "Met in Full," what else did you learn from the test? If your team marked a prediction as "Met in Part" or "Not Met," why do you think the prediction turned out as it did? Consider the following: ● Refer to your data. What do the data suggest? ● What did you learn from unexpected happenings during your test? ● What can you learn from the obstacles you encountered? ● What do you know now that you wish you knew at the start of the test?

PDSA Cycle—ACT SECTION	
ACT (write in this column)	**Instructions**
Decide whether your team will recommend to Adapt, Adopt, or Abandon the change idea. Include your reasons for this decision.	Teams should *ADAPT* a change idea when they are working on improving implementation and/or adjusting the change idea to make it more effective. *ADAPT* is the most common choice as more testing is often required. If you choose *ADAPT*, describe what your team will do differently for the next PDSA cycle. Teams should *ADOPT* a change idea when the data indicate that the change idea results in measurable improvement and teams can enact the change idea consistently. Teams should *ABANDON* a change idea when the data show the change idea is consistently not resulting in improvement, when teams struggle to implement the change idea, and/or when the team no longer feels invested in the change idea. Consider the following: ● What data from your data collection are you using to make this decision? Be specific. ● What does your team think about the consistency of the implementation? ● How many attempts has your team made to adjust the change idea thus far?