Goal 1: Increase the number of well-prepared, high-quality educators to teach computer science

Objective 1.1: Train a cohort of K-5 educators in Code.org CS Fundamentals and collect data on impact

INDICATOR 1.1.1: Advertise program to schools and districts in Southern NJ via direct email (Staff), relevant listservs (CS & Steam Faculty), and presentations at meetings (CS & STEAM Faculty) in April, May, and June 2021. Include numbers and venues of each on quarterly data reports (QDRs) (PI). INDICATOR 1.1.2: Collect at least 35 applications via an online google form by June 30, 2021 (Staff). Report statistics on absolute numbers, number of schools represented, number of districts represented on QDRs (PI). INDICATOR 1.1.3: Select 25 teachers and 5 alternates to participate in workshop in July (CS and STEAM Faculty). Report statistics on absolute numbers, number of schools represented, number of districts represented on QDRs(PI). INDICATOR 1.1.4: Hold one-day workshop with at least 23 teachers in August 2021 (Code.org, RU CS Faculty Mentor (RUCSFM), Staff). Report statistics on absolute numbers, number of schools represented, number of districts represented, and final evaluation results on QDRs (PI). INDICATOR 1.1.5: RUCSFM sends at least one message every two weeks to teachers after initial workshop and encourages feedback and questions. Report statistics on number of messages, number of feedbacks and number of questions received on QDRs (PI). INDICATOR 1.1.6 Collect data on teacher use of CS Fundamentals materials in classes and extracurricular activities. (RUCSFM) Report statistics on absolute numbers, number of schools represented, number of districts represented, and final evaluation results on QDRs (PI).

Objective 1.2: Train a cohort of Grades 6-10 educators in Code.org CS Discoveries and collect data on impact

INDICATOR 1.2.1: Advertise program to schools and districts in Southern NJ via direct email (Staff), relevant listservs (CS & Steam Faculty), and presentations at meetings (CS & STEAM Faculty) in April, May, and June 2021. Include numbers and venues of each on quarterly data reports (QDRs) (PI). INDICATOR 1.2.2: Collect at least 25 applications via an online google form by June 30, 2021 (Staff). Report statistics on absolute numbers, number of schools represented, number of districts represented on QDRs (PI). INDICATOR 1.2.3: Select 15 teachers and 3 alternates to participate in workshop in July 2021 (CS and STEAM Faculty). Report statistics on absolute numbers, number of schools represented, number of districts represented on QDRs (PI). INDICATOR 1.2.4: Hold five-day workshop with at least 13 teachers in August 2021 (Code.org, RU CS Faculty Mentor (RUCSFM), Staff). Report statistics on absolute numbers, number of schools represented, number of districts represented, and final evaluation results on QDRs (PI). INDICATOR 1.2.5: Hold four additional one-day workshops with an average of 10 teachers in attendance in Fall 2021 and Spring 2022. (Code.org, RU CS Faculty Mentor (RUCSFM), Staff) Report statistics on absolute numbers, number of schools represented, number of districts represented, and final evaluation results on QDRs (PI). INDICATOR 1.2.6: Collect data on teacher use of CS Discoveries materials in classes and extracurricular activities. (RUCSFM) Report statistics on absolute numbers, number of schools represented, number of districts represented, and final evaluation results on QDRs (PI).

Objective 1.3: Train a cohort of Grades 9-12 educators in Code.org CS Principles and collect data on impact.

INDICATOR 1.3.1: Advertise program to schools and districts in Southern NJ via direct email (Staff), relevant listservs (CS & Steam Faculty), and presentations at meetings (CS & STEAM Faculty) in April, May, and June 2021. Include numbers and venues of each on quarterly data reports (QDRs) (PI). INDICATOR 1.3.2: Collect at least 25 applications via an online google form by June 30, 2021 (Staff). Report statistics on absolute numbers, number of schools represented, number of districts represented on QDRs (PI). INDICATOR 1.3.3: Select 15 teachers and 3 alternates to participate in workshop in July 2021 (CS and STEAM Faculty). Report statistics on absolute numbers, number of schools represented, number of districts represented on QDRs (PI). INDICATOR 1.3.4: Hold five-day workshop with at least 13 teachers in August 2021 (Code.org, RU CS Faculty Mentor (RUCSFM), Staff). Report statistics on absolute numbers, number of schools represented, number of districts represented, and final evaluation results on QDRs (PI). INDICATOR 1.3.5: Hold four additional one-day workshops with an average of 10 teachers in attendance in Fall 2021 and Spring 2022. (Code.org, RU CS Faculty Mentor (RUCSFM), Staff) Report statistics on absolute numbers, number of schools represented, number of districts represented, and final evaluation results on QDRs (PI). INDICATOR 1.3.6 Collect data on teacher use of CS Principles materials in classes and extracurricular activities (RUCSFM). Report statistics on absolute numbers, number of schools represented, number of districts represented, and final evaluation results on QDRs (PI).

Objective 1.4: Introduce pre-service teachers to programming via the Scratch language and collect data on impact

INDICATOR 1.4.1: Modify existing Education Technology (ET) course to include unit on Scratch Programming (CS and STEAM Faculty, Instructor) and report on content in quarterly data reports (QDRs) (PI). INDICATOR 1.4.2: Register at least 50 pre-service teachers in pilot classes in Fall 2021 (Rowan Registrar). Report on number of class sections, number and majors of students in QDRs (Instructor & PI). INDICATOR 1.4.3: Teach at least three sections of ET course in Fall 2021 semester. Report on number of class sections, number and majors of students, and results in QDRs (Instructor & PI). INDICATOR 1.4.4: Survey each pre-service teacher twice about their use of the Scratch Programming language, once during the course itself and once a month after course completion (Instructor). Report on results in QDRs (PI).

Goal 2: Expand equitable access to high-quality computer science education for all K-12 students

Objective 2.1 Establish and operate Rowan University Computational Lending Library (RUCLL) to increase teacher access to both digital and "unplugged" manipulatives and other educational tools for use in classes, extracurricular activities, and outreach.

INDICATOR 2.1.1: In April 2021 purchase a minimum of 15 different Digital Manupulatives (DMs) for evaluation (Digital Scholarship Center Librarians (DSCLs), CS & STEAM faculty). Report types of DMs, manufacturer grade recommendations, and curricula in quarterly data reports (QDRs) (PI). INDICATOR 2.1.2: In May and June 2021 assess DMs to determine appropriate grade range, available curricula, alignment to CSTA and NJ K-12 Standards. Select and purchase 5-10 DMs for inclusion in the library, ensuring that DMs cover all of grades K-12 and that all "classroom kits" have sufficient DMs to support one DM-per-student for safe social distancing based on targeted grade levels' class sizes (DSCLs, CS & STEAM Faculty). Report results of assessments and number and types of DMs purchased in QDRs (PI). INDICATOR 2.1.3: In May and June 2021 prepare reservation, data collection, and check-out/in system for RUCLL equipment (DSCLs). Establish guidelines for reservations, use reporting requirements, and COVID cleaning/safety/equipment "quarantine" protocols to promote widest use of the equipment given pandemic restrictions (Rowan Health & Safety (RHS), DSCLs, CS & STEAM Faculty). Report progress on QDRs (PI). INDICATOR 2.1.4: Revisit COVID cleaning/safety/equipment "quarantine" protocols quarterly and revise as appropriate (RHS, DSCLs, CS & STEAM Faculty). INDICATOR 2.1.5: In July 2021 purchase, catalog, and prepare the equipment for lending (DSCLs and student workers). Report progress on QDRs (PI). INDICATOR 2.1.6: In late August 2021 open the reservation system to priority users (district partners and those who have taken our PD on the use of the DMs) (DSCLs). Report reservation activity on QDRs (PI). INDICATOR 2.1.7: In early September 2021 open the reservation system to all users (DSCLs). Report reservation activity on QDRs (PI). INDICATOR 2.1.8: September 2021 - August 2022 collect data on use of RUCLL equipment (DSCLs). Report on QDRs (PI).

Objective 2.2: Train Southern NJ Educators in the use of Digital Manipulatives

INDICATOR 2.2.1: In May and June 2021, design curricula for 5 distinct half-day workshops based on Digital Manipulatives selected for inclusion in the Rowan University Computational Lending Library. Workshops may be designed for face-to-face or online delivery depending on pandemic restrictions (CS and STEAM Faculty, Rowan Health&Safety). Report on activity in quarterly data reports (QDRs) (PI). INDICATOR 2.2.2: Advertise program to schools and districts in Southern NJ via direct email (Staff), relevant listservs (CS & Steam Faculty), and presentations at meetings (CS & STEAM Faculty) in April, May, and June 2021. Include numbers and venues of each on (QDRs) (PI). INDICATOR 2.2.3: Collect applications for the workshops from a minimum of 50 distinct educators via an online google form by July 15, 2021 (Staff). Report statistics on absolute numbers, number of schools represented, number of districts represented on QDRs (PI). INDICATOR 2.2.4: In late July 2021, select educators to participate in the half-day workshops, with and without stipends. Fill a minimum of 125 seats (stipends included) and up to 25 additional seats without stipends (CS and STEAM Faculty, Staff); trying to maximize the number of individual educators who will participate. Report statistics on absolute numbers, number of schools represented, number of districts represented on QDRs(PI). INDICATOR

2.2.5: Hold 10 half-day workshops to train at least 40 distinct educators in August 2021 (RU STEM Center, CS & STEAM Faculty). Report statistics on absolute numbers, number of schools represented, number of districts represented, and final evaluation results on QDRs(PI). INDICATOR 2.2.6: Survey workshop participants in January and June of 2022 to determine how workshop content was used. Report results on QDRs (PI).

Goal 3: Provide resources to schools, school districts, and families to assist in exposing K-12 students to online and "unplugged" computer science concepts both in and out of school

Objective 3.1: Modify Computational Thinking Bins for use in socially distant settings

INDICATOR 3.1.1: In May of 2021 order necessary parts for current Computational Thinking Bins (CTBs) (CS & STEAM Faculty and Staff). Report on activity in quarterly data reports (QDRs) (PI). INDICATOR 3.1.2: In May and June of 2021 determine which activities are suitable for modification, order additional supplies as necessary, and design modifications (CS & STEAM Faculty, Staff, Student Workers). Report on activity in QDRs (PI).

Objective 3.2: Curate a list of resources for teaching and learning Computer Science while social distancing

INDICATOR 3.2.1: In April and May 2021 find a minimum of 12 online resources that describe CS learning activities that already work for socially distanced learning or could be easily modified to do so across the K-12 grade range. Some of these activities should not require any hardware or internet connectivity, but may make use of inexpensive supplies (e.g. paper, tape, rubber bands, paper plates, plastic cups, etc.) (CS & STEAM Faculty). Report on activity in quarterly data reports (QDRs) (PI). INDICATOR 3.2.2: In June and July of 2021 create a website that includes links to a minimum of 10 of these resources, with modification instructions where appropriate, along with alignment to CSTA and NJ K-12 Standards.

Objective 3.3: Train curriculum supervisors and administrators in "Activities for Socially Distanced Computer Science Education"

INDICATOR 3.3.1: Advertise program to schools and districts in Southern NJ via direct email (Staff), relevant listservs (CS & Steam Faculty), and presentations at meetings (CS & STEAM Faculty) in April, May, and June 2021. Include numbers and venues of each on quarterly data reports (QDRs) (PI). INDICATOR 3.3.2: In May and June 2021 design curriculum for one day workshop to "train the trainer" in "Activities for Socially Distanced Computer Science Education" (CS and STEAM Faculty). INDICATOR 3.3.3: Collect at least 20 applications via an online google form by June 30, 2021 (Admin). Report statistics on absolute numbers, number of schools represented, number of districts represented on QDRs (PI). INDICATOR 3.3.4: Select 15 educators and 3 alternates to participate in workshop in July 2021 (CS and STEAM Faculty). Report statistics on absolute numbers, number of schools represented, number of districts represented on QDRs (PI). INDICATOR 3.3.5: Hold one-day workshop with at least 13 educators in August 2020 (CS and STEAM Faculty, staff). At

conclusion of the workshop provide each educator with a full set of Modified Computational Thinking Bins. Report statistics on absolute numbers, number of schools represented, number of districts represented, and final evaluation results on QDRs (PI). INDICATOR 3.3.6: Survey workshop participants in January and June of 2022 to determine how workshop content was used. Report results on QDRs (PI).

Goal 4: Work with NJDOE and other NJ organizations to strengthen Computer Science education throughout New Jersey

Objective 4.1: Support NJDOE-Led CS Working Groups

INDICATOR 4.1.1: In April 2021 reach out to partner LEAs for recommendations for teachers to participate in NJDOE-Led CS Working Groups (PI). Include statistics on absolute numbers, number of LEAs represented, and grade bands represented in quarterly data reports (QDRs). INDICATOR 4.1.2: In May of 2021 recommend one teacher from each of the following grade bands to NJDOE: K-2, 3-5, 6-8, 9-12. Report details on LEAs represented and grade bands in QDRs.

Objective 4.2: Connect with other NJ CS Hubs

INDICATOR 4.2.1: In April and May 2021 establish initial connections with Northern and Central NJ CS Hubs (PI). If they are amenable, plan a meeting among faculty and instructors from each project. Report on interactions in quarterly data reports (QDRs). INDICATOR 4.2.2: On a quarterly basis reassess, together with other NJ CS Hubs, whether we would benefit from additional meetings beyond the regular steering committee meetings. Report on any additional meetings in the QDRs.

Objective 4.3: Create CS outreach event for students and their families

INDICATOR 4.3.1: In April and May 2021 establish whether Northern and Central NJ CS Hubs are interested in doing a joint online outreach event. If they are amenable, hold an initial meeting in June or July with at least one representative from each Hub (CS/STEAM Faculty & PI). Report on interactions in quarterly data reports (QDRs) (PI). INDICATOR 4.3.2: In Fall 2021 work with Rowan's STEM ecosystem partner, the South Jersey STEM & Innovation Partnership (SJSIP, southjerseysip.org, part of the NJ STEM Pathways Network) to design an outreach event for students and their families to be held in Spring 2022 for at least 50 students, collaborating with other Hubs if they are amenable.) Report on plans in QDRs (PI). INDICATOR 4.3.3: In early Spring 2022 advertise program to schools and districts via direct email (Staff) and community organizations (CS/STEAM Faculty & Staff). Include numbers and venues of each on QDRs (PI). INDICATOR 4.3.4: Hold CS outreach event(s) for students and their families involving a minimum of 50 students (if just Southern Hub and SJSIP) or 150 students (if all 3 Hubs). (CS/STEAM Faculty) Report statistics in QDRs on absolute numbers, and, if feasible, also report on student grade levels, districts represented, etc.