The Roadmap.Center Platform

Free, Device-independent, Tiny-Footprint Tools
to Manage the Life-Cycle of a Digital Lesson
Creating, Distributing, Enacting, Assessing, and Sharing Digital, OER-based Lessons

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Figure 1: Three students using Android tablets & one student using a netbook while collaborating via a lesson Roadmap
See a video of 6th grade students using the Collabrify apps

The following trends in K-12 are driving dramatic changes in the "what" and "how" of teaching and learning:

- **Textbooks - decreasing:** Paper-based books, the mainstay of K-12 of education, are going the way of the dodo bird. But textbooks, and their accompanying guides, have provided teachers with scope-and-sequenced, standards-aligned, curriculum.
- **Digital curriculum - increasing:** There are literally millions of OER – open education resources – freely available on a multitude of "OER marketplaces." Of course, finding the one video, for example, or the one article that a teacher needs is no mean feat!
- **1-to-1 is the New Normal** – More than half of America's classrooms are 1-to-1 – every child has a computing device. By 2020 virtually 100% of America's classroom will be 1-to-1.

In this new world of "digital education" *what* will teachers teach – and *how*?

While there is no shortage of standards that can guide educators in deciding "what" should be taught, actually finding good educational materials and stitching them together into a standards-aligned, coherent, engaging lesson is a demanding task. As for the "how," *blended learning* – where groups of students work together (Figure 1), each on his/her 1-to-1 device – while the teacher manages the class – is becoming a standard instructional technique.

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The digital cobblers at the Intergalactic Mobile Learning Center (IMLC) have designed and developed a suite of device-independent, tiny-footprint – and free – tools that can help teachers with the "what" and the "how" – with helping teachers find and stitch together OER content to create OER curriculum, and helping teachers in managing a 1-to-1, blended learning classroom.

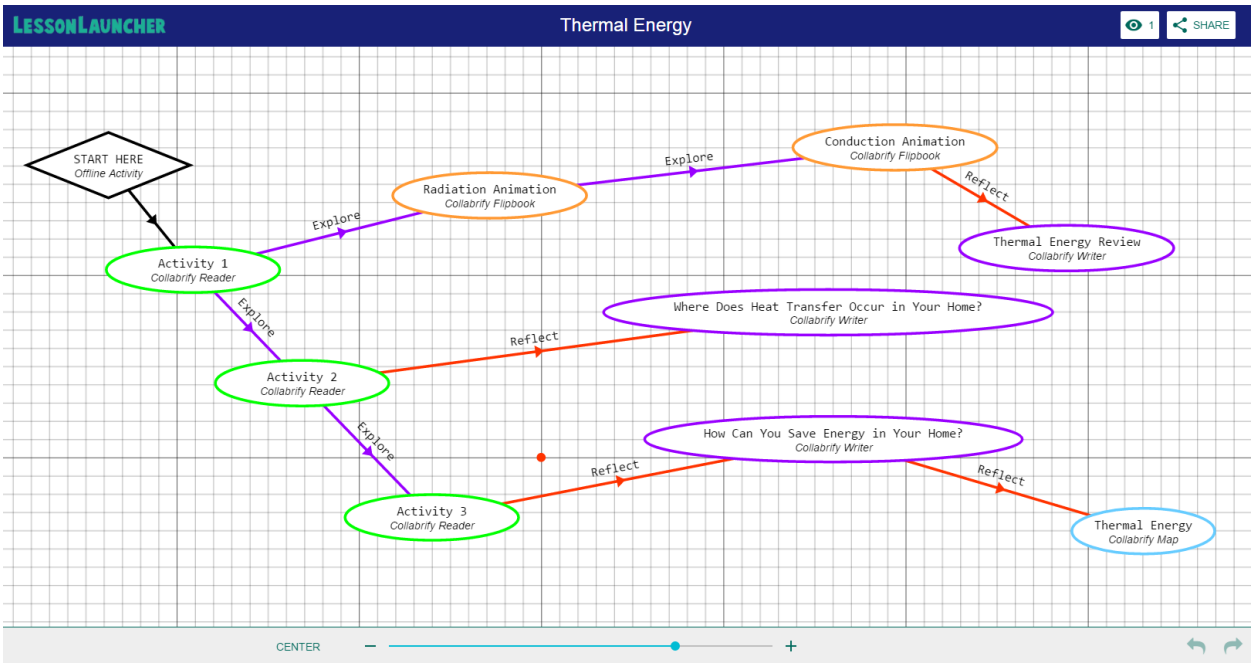


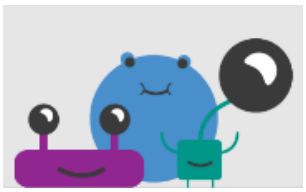
Figure 2: Student view of a Roadmap for a 6th Grade Thermal Energy Lesson

At the core of the Roadmap.center Platform, then, is the Roadmap (Figure 2), a deeply-digital representation of a lesson. Tools available at Roadmap.center, then, support educators and students in manipulating a Roadmap during the various stages of a lesson's life-cycle. (See Figure 3 - just to be clear: *all* of the tools described below are available at one URL – Roadmap.center)

The tools in the Roadmap.center Platform are:

- **Device-independent:** The Roadmap.center tools are written in HTML5, which means that the Roadmap.center tools run inside a browser – Chrome, Safari, Firefox[2]. Since those browsers run on virtually all computing devices – tablets, laptops, Chromebooks, smartphones, etc. – Roadmap.center tools are "device independent."
- **Tiny-footprint:** In moving from no technology use in their classrooms to even just some technology use is a major step for schools and districts. Thus, it is our belief that technology needs to be designed to minimize the investment/lower the barrier that needs to be made in order to begin to use that technology. In particular:
    - **For K-12 teachers:** After teaching for 20 years, say, with textbooks, the shift to using a computing device and digital curricular takes significant effort on a teacher's part. For example, professional development experiences are needed as well as mental shifts about teaching and learning are needed. And, now classrooms are rapidly moving to 1-to-1 – that shift is truly a demanding one! We expressly designed the Roadmap.center apps (1) to lower

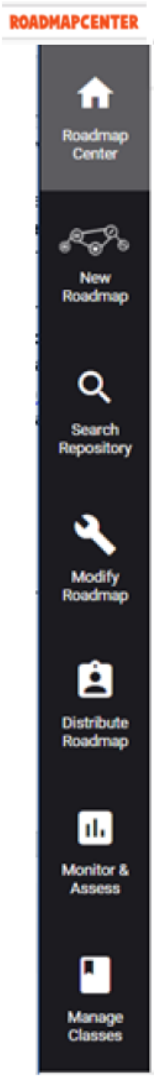
[2] Currently, CoRP does not support the Microsoft browsers, e.g., IE, Edge. We are planning to provide such support in the near term, however.



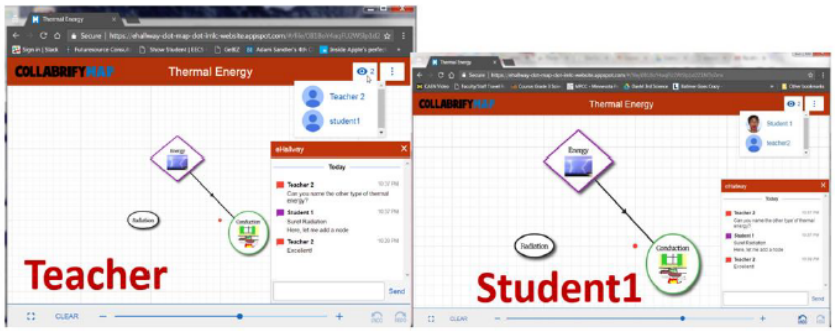
the investment teachers need to make in moving to 1-to-1 and digital curricula, (2) to create an experience that teachers find accessible, e.g., the lesson Roadmap is based on a very familiar, concept-map and hyperlink representation.

- **For K-12 students**: While "the kids these days" are technology-savvy, and truth be told, will usually be able to figure out even an abominably designed interface, we have used the principles of Learner-Centered Design (LCD) in the construction of all the tools in the Collabrify Productivity Tool Suite and in the Roadmap.center Platform.
- **For IT staff:** IT staff too are challenged as their classrooms move to 1-to-1 and to digital curricula. Again, we expressly designed the Roadmap.center apps to make minimal demands on the IT staff, e.g., no special server software is needed, and no special network infrastructure is needed.

Ease of use; ease of entry; lower the barriers; keep it simple; be respectful of teachers' and students' time; etc., etc. Getting started using technology is challenge; we try to make the technology being used as approachable, as accessible, as possible.

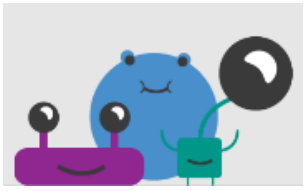


- **Develop/modify a lesson**: Using **RoadmapBuilder**, a teacher is able to quickly and easily create a digital lesson from scratch — or take an existing digital lesson and modify it, e.g., add/delete/modify a digital resource. The nodes in a Roadmap define the learning activities; a learning activity can direct a student to use an application (e.g., a word processor), view a video, visit a website, etc. Virtually any URL can be placed inside a Roadmap's node. RoadmapBuilder is an open curriculum construction tool; OER elements from OER websites can be included in a Roadmap.
- **Distribute a lesson**: Using the "distribute tool" a teacher can send a lesson to her/his students quickly and easily. Importantly, using the distribute tool, a teacher can put students in groups so that the students can work collaboratively on the lesson. (Moreover, the groups can be changed during enactment, of course.)
- **Monitor the enactment of a lesson**: In order for students to use a Roadmap that has been distributed to them, they go to start.roadmap.center and sign in with their Google account. Students then click on a Roadmap in their Roadmap list. That Roadmap, then, opens up in a restricted version of RoadmapBuilder; students click on nodes in the Roadmap, working their way through the Roadmap. The teacher uses **the Monitor Roadmap tool in Roadmap.center** to "watch" her/his students as they work through the Roadmap *in real-time*. Using **eHallway** (a coming feature), teachers and students can engage in text-based conversations, e.g., a teacher can send a note to a student (or a group of students) with suggestions.
- **Post-enactment, assess and provide feedback**: After a lesson, a teacher uses the Monitor and Assess tool to access the artifacts students created during the lesson; all the artifacts are stored in one place. And, using **eHallway**, a teacher can provide feedback to the students on their work.
- **Review learning analytics**: A teacher will be able to quickly see key analytics that characterize student performance. For example, if the students are working in groups, a teacher needs to see at a glance if one of the group is not contributing.



- **Share a lesson**: A teacher can post a Roadmap into the **Roadmap Repository**; other teachers can then re-use a Roadmap, modifying to fit their particular needs. Teachers can use **eHallway** to engage in extended conversations about a lesson Roadmap.

Figure 3: Using Roadmap.Center to Manage the Life-Cycle of a Digital Lesson



The tools in the **Roadmap.center Platform** are available at the Roadmap.center URL. As well, manuals and video tutorials for the tools in the Roadmap.center will be posted at Roadmap.center.

Note: Roadmap.center is Google Classroom-friendly; via the Roadmap.center, a teacher can post a Roadmap to Google's Classroom for easy student access.

Questions, comments? Please contact: Elliot Soloway, soloway@umich.edu, 734-355-4098.