

Sugar on a Stick

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1. Introduction

"We like to think that a child's play is unconstrained—but when children appear to feel joyous and free, this may merely hide from their minds their purposefulness; you can see this more clearly when you attempt to drag them away from their chosen tasks. For they are exploring their worlds to see what's there, making explanations of what those things are, and imagining what else could be; exploring, explaining and learning are among a child's most purposeful urges and goals. *The playfulness of childhood is the most demanding teacher we have.* Never again in those children's lives will anything drive them to work so hard."

—Marvin Minsky, *The Emotion Machine*

What is Sugar?

Sugar is a learning platform that reinvents how computers are used for education. Collaboration, reflection, and discovery are integrated directly into the user interface. Sugar promotes studio thinking¹ and reflective practice². Through Sugar's clarity of design, children and teachers have the opportunity to use computers on their own terms. Students can reshape, reinvent, and reapply both software and content into powerful learning activities.

The Sugar Learning Platform is a computer environment composed of “activities” designed to help children from 5 to 12 years of age learn together through rich-media expression. Sugar is the core component of a worldwide effort to provide every child with the opportunity for a quality education. Sugar provides the means to help people lead fulfilling lives through access to a quality education that is currently missed by so many.

Sugar facilitates sharing and collaboration.

Children can write documents, share books and pictures, or make music together with ease.

There are no files, folders, or applications.

Children interact with Activities. Activities include an application, data, and history of the interaction that can be used to resume and reflect on the child's work.

Everything is saved automatically.

¹ Studio thinking is a term used to describe how visual arts teachers teach and what visual arts students learn. Studio thinking includes "studio structures": demonstrations, projects, and critiques; as well as "studio habits of mind": develop craft, engage and persist, envision, express, observe, reflect, stretch and explore, and understand the art world. In the context of Sugar, studio thinking is applied not just to the arts, but to all disciplines.

² Reflective practice is a concept introduced by Donald Schön in his book *The Reflective Practitioner*. Reflective practice involves students applying their own experiences to practice while being mentored by domain experts. In the context of Sugar, the expert could be a teacher, a parent, a community member, or a fellow student.

It is our goal that you will never lose your work. Documents will eventually be synchronized with a network server, adding additional protection.

A Journal is used for accessing data.

The Journal is a diary of things that you make and actions you take. It is a place to reflect upon your work.

What is Sugar Labs?

Sugar Labs is a volunteer-driven, non-profit foundation whose mission is to produce, distribute, and support the use of the Sugar learning platform. Sugar Labs supports the community of educators and software developers who want to extend the platform and who have been creating Sugar Activities. Sugar is a community project. It is available under the open-source GNU General Public License (GPL) and free to anyone who wants to use or extend it.

The Sugar Philosophy

Information is about nouns. Learning is about verbs. The Sugar user interface differs from traditional user interfaces in that it is based on both cognitive and social constructivism. We believe that learners should engage in exploration and collaboration. The Sugar platform is based on three defining human principles. These are the pillars of user experience for learning:

- Everyone is a teacher and a learner
- Humans are social beings
- Humans are expressive

Two principles define the Sugar platform:

- You learn through doing, so if you want to learn more, you want to do more.
- Love is a better master than duty—you want people to engage in things that are authentic to them, things that they love. Internal motivation almost always trumps external motivations.

Three experiences characterize the Sugar platform:

- **Sharing.** The Sugar interface always shows the presence of other learners. Collaboration is a first-order experience. Students and teachers dialog with each other, support each other, critique each other, and share ideas.
- **Reflecting.** Sugar uses a "Journal" to record each learner's activity. The Journal serves as a place for reflection and assessment of progress.

- **Discovering.** Sugar can accommodate a wide variety of users, with different levels of skill in terms of reading, language, and different levels of experience with computing. It is easy to approach, yet it doesn't put an upper bound on personal expression. One can peel away layers and go deeper and deeper, with no restrictions.

Sugar is written in Python, an easy-to-learn interpreted language³. This allows the direct appropriation of ideas in whatever realm the learner is exploring: music, browsing, reading, writing, programming, or graphics. The student can go further. They are not going to hit a wall. They can, at every level, engage with and affect the very tools they are using for their personal expression.

What is Sugar on a Stick?

Sugar on a Stick is an innovative way to deliver Sugar. It is a complete learning environment designed for children age 5-12 and delivered on an inexpensive USB key that can boot any computer. To use, students simply insert the USB key into any computer, restart, and are immediately connected to their personal suite of collaborative, creative and Web 2.0 learning tools, thus, providing students with any time, any computer access to learning.



³ An interpreted language is a programming language whose instructions are interpreted "on the fly" (or compiled to a virtual machine code) as opposed to precompiled. The significance of interpreted languages to the Sugar platform include: platform independence, ease of debugging, ready access to source code, and small program size. Python is a general-purpose, high-level programming language. It emphasizes code readability and features a minimalist syntax and comprehensive standard library.

2. Getting Started with Sugar on a Stick

Plug the USB key into the target computer and boot or restart to run Sugar. When you power-on your computer or laptop, you should see the Sugar Home View. You are ready to proceed with Sugar.

Note that Sugar on a Stick does not alter files already installed on your computer. It returns to its previous state when the USB key is unmounted or ejected and the computer is rebooted.

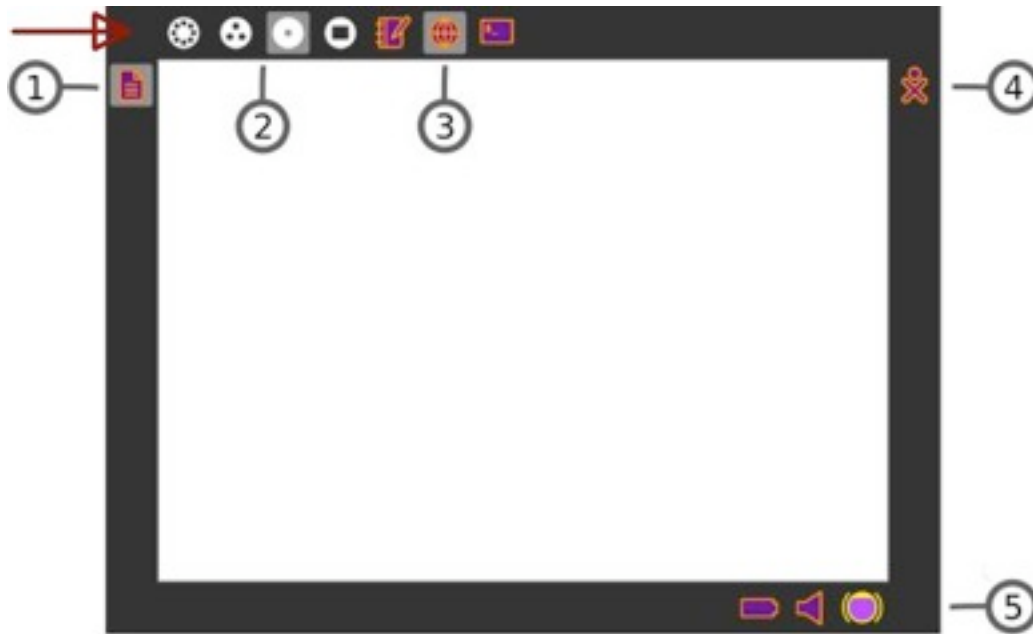


The Frame

The Frame, which you can get to from any view, contains a clipboard, incoming invitations and notifications, buddies, open Activities, and global information that is used across all Views.

To enable or activate the Frame, simply move the arrow pointer to any corner of the screen as shown by the red arrow in the following image. You may do this while working on any Activity or Journal.

When the Frame is activated, note that you will be able to shift or go to the Journal, other open Activities, or to the different views such as the Activity View, Home View, Neighborhood View, or Group View. Simply click on the icon displayed on the Frame.



To make changes on the Frame settings or the Activation Delay, please refer to the chapter on *Personalizing Sugar*. See the topic on *The Main Panel*.

1. Clipboard

The left-hand edge of the Frame serves as a clipboard. You can drag objects such as images and text to and from the clipboard, and from and to Activities.

2. Zoom menu

The Zoom menu is on the upper-left edge of the Frame. Use it to move between the four Sugar views: Neighborhood, Group, Home, and Activity.

3. Open Activity list

The list of currently open Activities appears on the top edge of the Frame. The active Activity is highlighted. (The Journal always appears here.)

Sometimes an unlabeled circle appears here --- it usually represents an additional full-screen session started by an Activity whose icon already appears in the top edge of the Frame.

Invitations also appear on this portion of the Frame. They appear as icons in the color of the person who sent them.

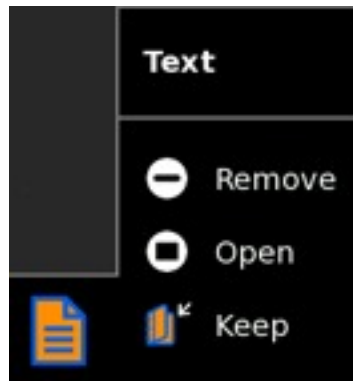
4. Active buddy list

People you are currently collaborating with appear on the right edge of the Frame.

5. System status

Battery, speaker, and network status appear on the lower edge of the Frame.

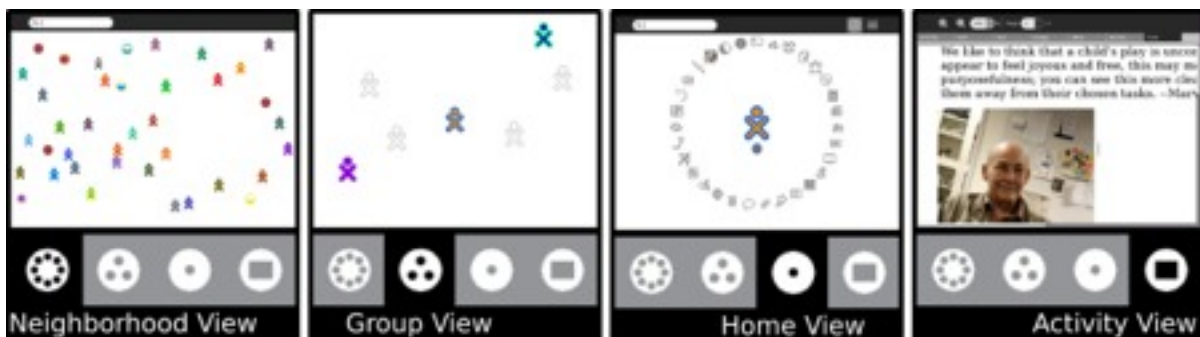
The Clipboard



You can drag items on the clipboard into Activities. A hover menu also lets you remove them from the clipboard, open them in an Activity, or save (keep) them in your Journal.

Viewing Sugar

The user interface differs from the traditional Desktop metaphor. It uses a "zooming" metaphor—each view represents a different scale of interaction. You move between a view of the network *neighborhood*, your *friends*, your *home page*, and your currently open application or *Activity*. Each view occupies the entire screen. There are no overlapping windows to deal with.



With Sugar, you zoom between views: from your network neighborhood to your current Activity.

Home View

Use the Home View to begin new Activities.

Note: When you have clicked on an Activity's icon, please wait for that Activity to start. If you get impatient and happen to click again on the Activity's icon, you may end up with that Activity being started twice.

When you click an Activity's icon, you see a start-up view while that Activity initializes. Once the Activity is running, you are placed into its Activity View. If the Activity fails to start, you are instead returned to the Home View.

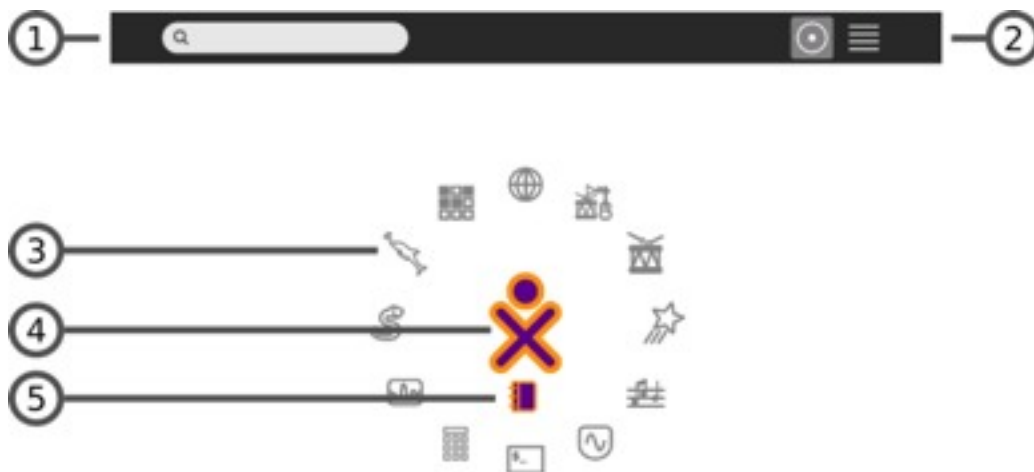


To get to the Home View, click the Home icon on the Frame or press the **F3** key.

The Home View has several modes. Each mode has a different arrangement of Activities:

- Your favorite Activities in a ring (Ring mode)
- Your installed Activities in a list (List view)
- Your favorite Activities arranged freeform (Freeform mode)

Favorites View



1. Search box

Use the search box to find Activities. Note: If in List view you see fewer Activities than expected, you may need to click the small X at the right end of the search box to undo an unintended search request.

2. View modes

Click an icon to switch to a different view. Hover over the Favorites icon to see a menu that lets you pick Ring mode or Freeform mode.

3. Activity icon

Click an Activity icon to launch that Activity (which causes it to appear on the Frame). Only Activities that have been "starred" as favorites appear in this view. (Please see the List View below for more details.)

4. XO icon

Hover the pointer over the "XO" in the center of the Home View to bring up a menu and to access the Sugar Control Panel. (Please see the chapter on Customizing Sugar.)

5. Active-Activity icon

The icon of the currently active Activity appears under the XO icon.

List View

Use the List view to manage all of your Activities and to choose which Activity icons appear on the Favorites view.



1. Activity entry

Each entry in the list has:

- a star, which is colored for favorite Activities, which appear in Ring mode or Freeform mode. Click a star to color or clear it
- an icon
- a title
- a version number
- how long ago it was installed

2. Icon

Click the icon to launch the Activity. Caution: By clicking Erase in the icon's hover menu, you can uninstall that Activity from your system.

3. Version number

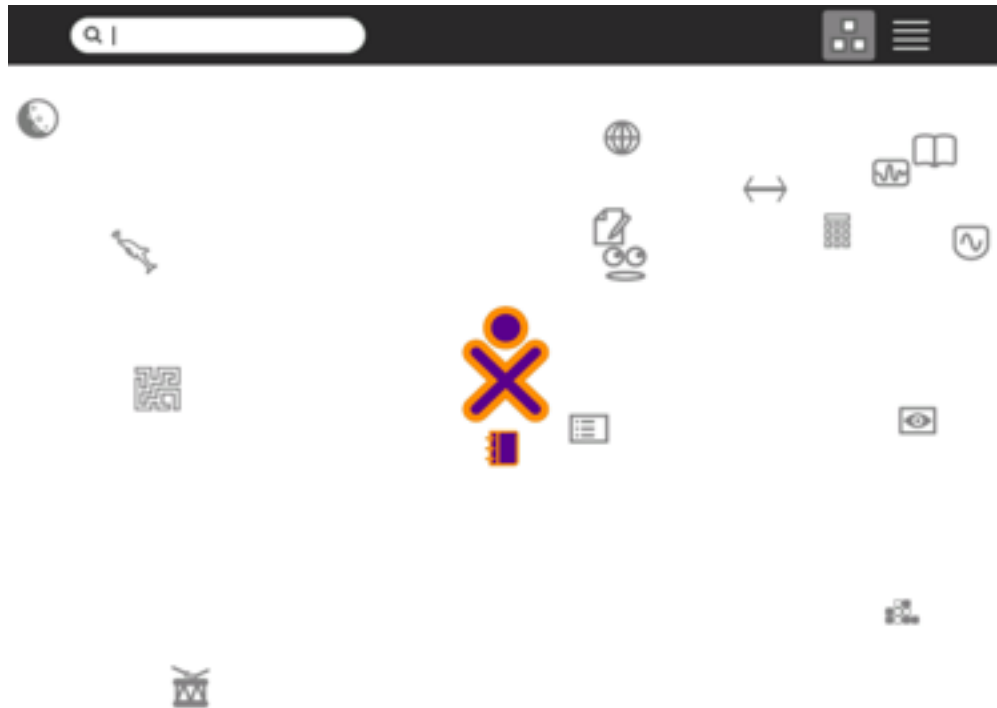
Lets you compare your version against an availability list to see if it is up to date.

4. Scroll bar

The Activity list may extend beyond the screen. Use the scroll bar to move through the list.

Favorites View in Freeform Mode

The Freeform mode of the Home View works the same as the Ring mode, but the icons are arranged arbitrarily instead of in a circle. You can drag the icons in this View to visually group them in a way that makes sense to you.



XO Menu

Use the hover menu that appears over the XO icon to access the Sugar Control Panel and to shutdown or restart the computer.



Activity View

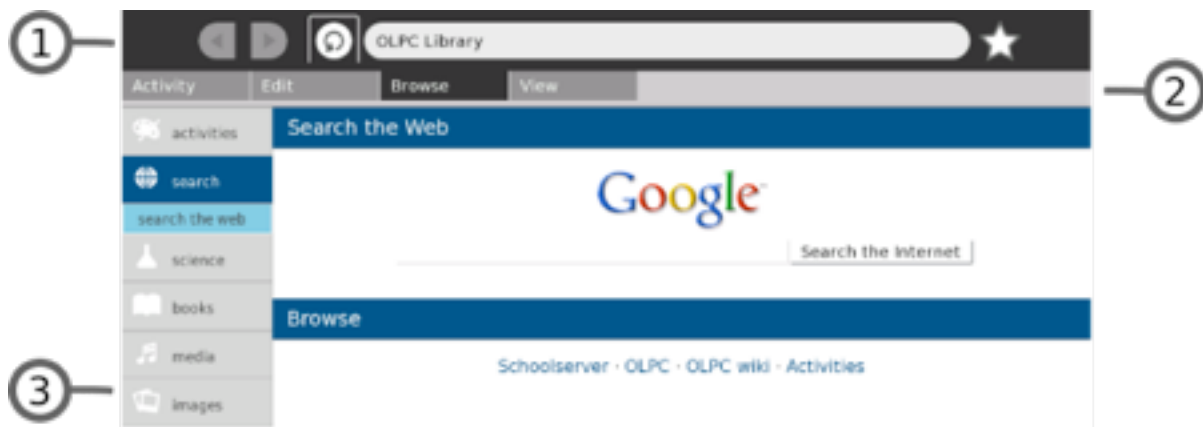
When you play with an Activity you are using the Activity View. Return to the most recently used Activity that is still running by clicking the Activity View icon at the top left of the Frame (shown below).



You can also use the Activity button for this purpose if your keyboard has one. Use the **F4** key if you are using a keyboard that does not have an Activity button.

Use the appropriate Activity icon in the top right of the Frame, from any View, to return to the Activity View for any running Activity.

Sugar Activities always use the full screen. This figure shows the Activity View for the Browse Activity.



1. Activity menus

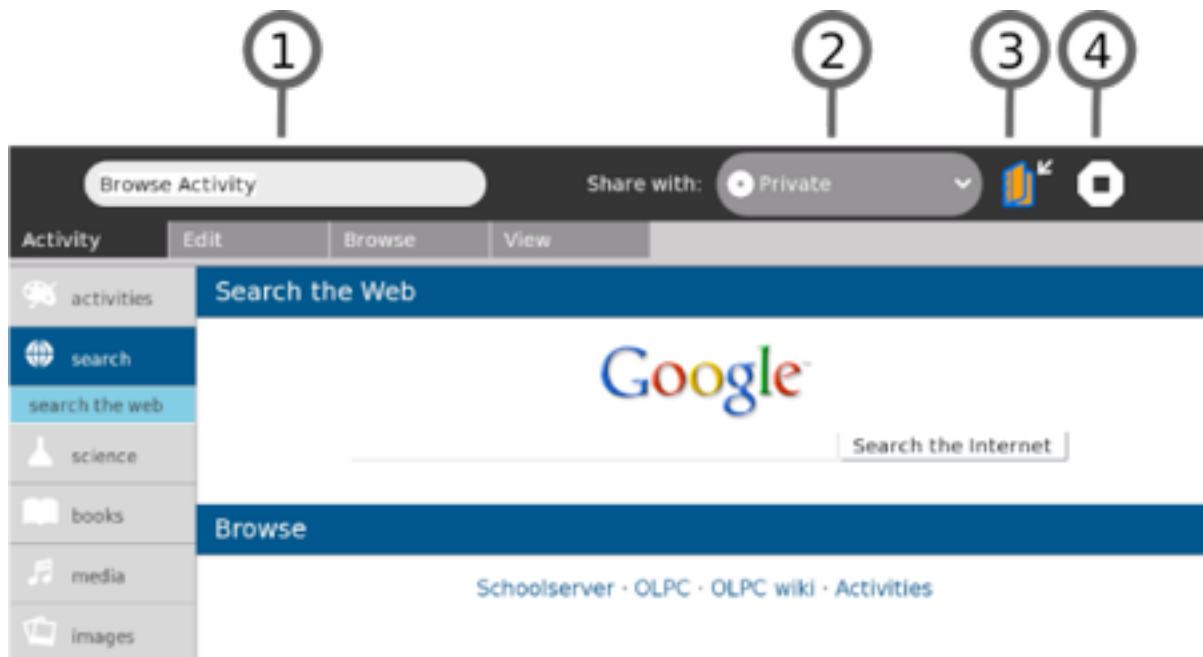
Activities have one or more menus that appear at the top of the screen.

2. Menu tabs

Click the tabs found just below the Activity menu to switch between the menus for an Activity.

3. Activity workspace

The rest of the screen is used by the Activity itself, in this example, Browse.



All Activities have an Activities menu.

1. Activity name

The content of the Activity name field is how this specific Activity session entry appears in the Journal. Be sure to enter a unique name here, if you want to make it easy to later find this session among the other instances of this same Activity shown in the Journal.

2. Share with menu

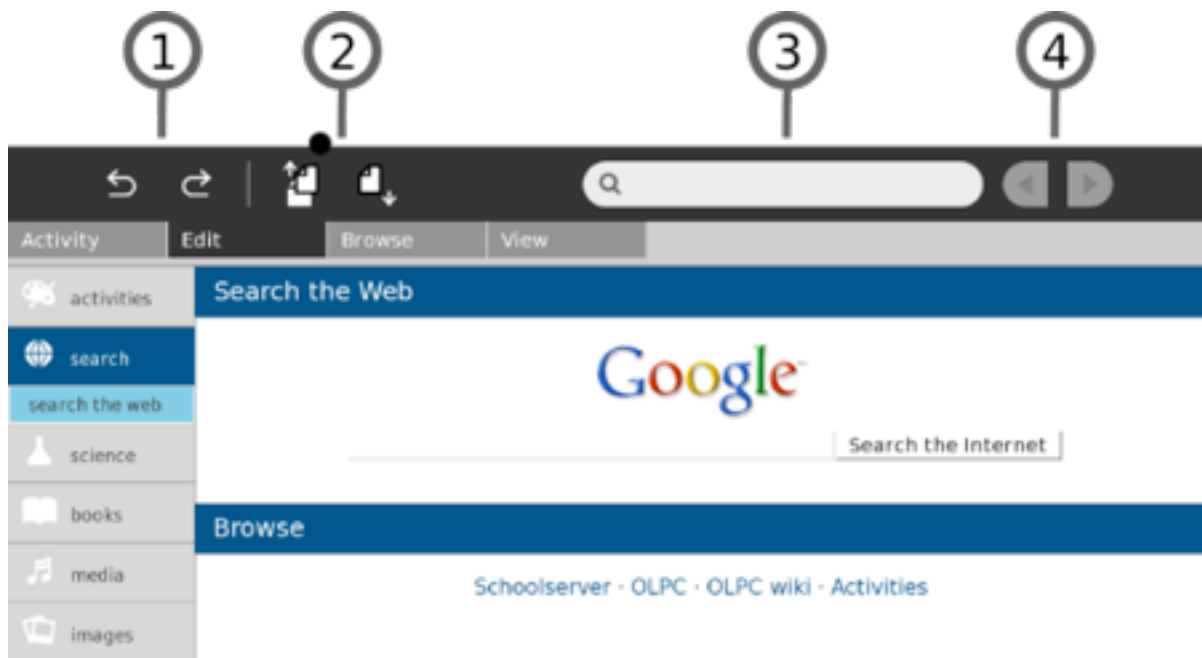
Use the *Share with* pull-down menu to share an Activity with your neighbors. Many Activities support sharing.

3. Keep button

Click the **Keep** button to force an Activity to save its current state in the Journal.

4. Stop button

Use the **Stop** button or press **ctrl + esc** to save the Activity in the Journal and close it.



Many Activities have an Edit menu.

1. Undo/Redo

The **undo** and **redo** buttons are application specific but usually refer to undoing or redoing your most recent edits.

2. Copy/Paste

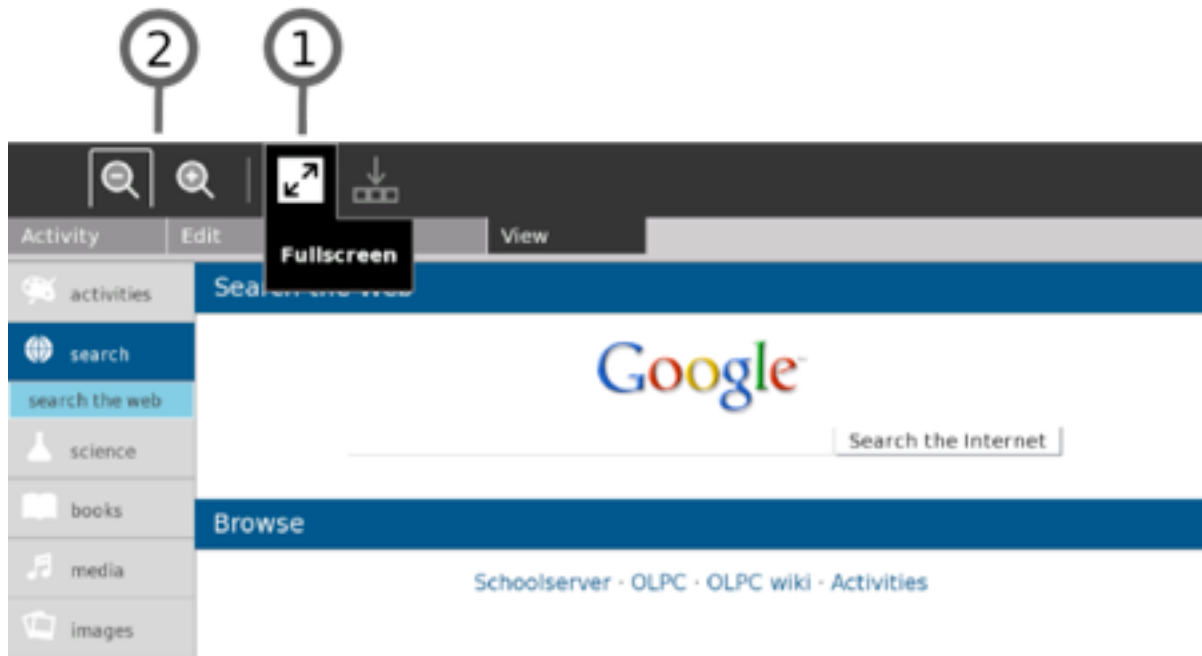
There are buttons for copy and paste. You can also use the keyboard shortcuts **ctrl + c** and **ctrl + v** for copy and paste respectively. Items you copy end up on the clipboard, which is found in the left edge of the Frame. Items you paste come from the clipboard.

3. Search

Many Activities support search: you can find text within the Activity by entering it into the search box.

4. Next/Previous

On the Edit menu, a pair of buttons allows you to find the next or previous occurrence of the text in the search box.



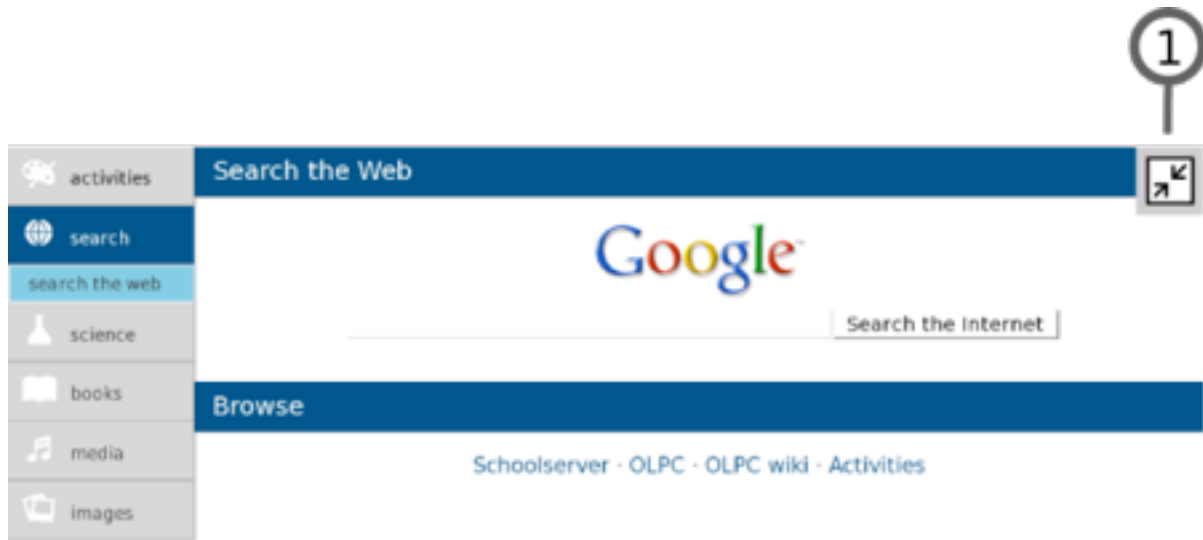
Many Activities also have a View menu.

1. The Full-screen button

Click the **Full-screen** button to make the Activity use 100% of the display, hiding the menu.

2. Shrink/Grow

Use the **Shrink** and **Grow** buttons to scale the display if the Activity supports this feature.



Leaving full-screen mode:

1. Full-screen button

Use the **Full-screen** button to view the menus again.



Many Activities use trays at the bottom of the screen to hold collections.

1. Tray button

Click the **Tray** button to toggle the appearance of the tray.

2. The tray

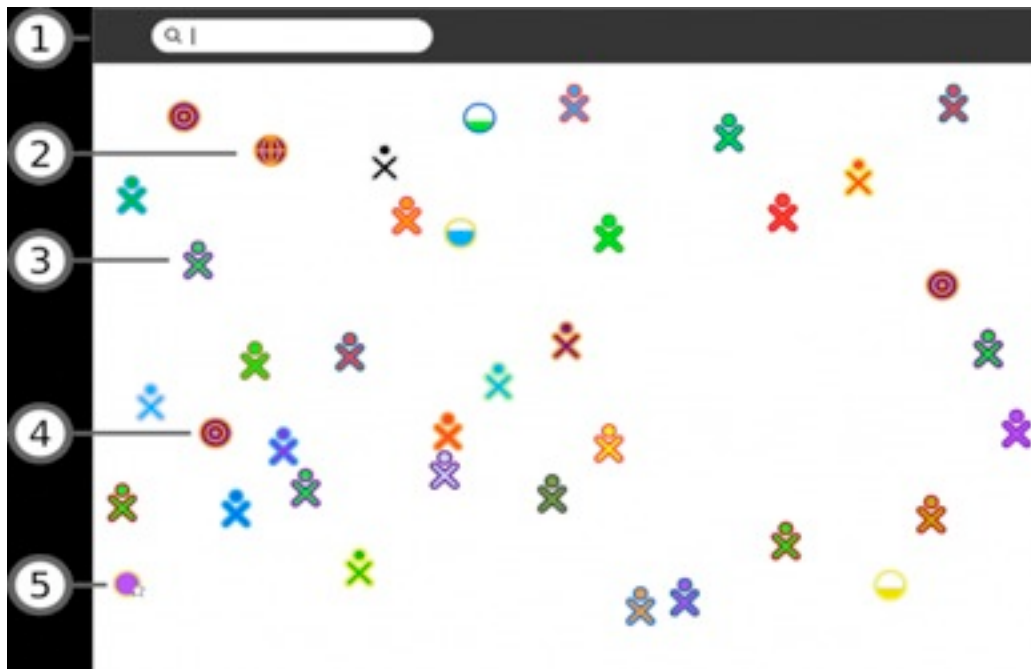
The tray typically appears at the bottom of the screen. The Tray contains objects associated with the Activity. In the Browse Activity, bookmarks appear in the tray. In the Record Activity, the media objects you create are placed in the Tray. Retrieve objects by clicking their thumbnails in the tray.

Neighborhood View

You can use the Neighborhood View to connect to the Internet and to collaborate with others.



To see the Neighborhood View, click the Neighborhood icon on the Frame. You can also use the **Neighborhood** button for this purpose if your keyboard has one, or press the **F1** key.



1. Search menu

You can find people, Activities, or access points using the search menu.

2. Shared Activities

You can join an Activity by clicking the Activity's icon. Shared Activities appear as icons in the Neighborhood View.

3. XO icon

Other Sugar users appear in the Neighborhood View. By hovering over an XO icon, you can discover the nickname of that person and can add them as a friend or invite them to join you in a shared Activity.

4. Mesh icon

A mesh icon lets you connect to a school server or other computers on a mesh (802.11s) network. By clicking a mesh icon you join that particular mesh network, and disconnect from an access point network. The other XO icons shown change according to who is on that network.

5. Access point

WiFi hot spots (Internet access points) appear as circles in the Neighborhood view. If you hover over a circle, the name of the access point (the ESSID it broadcasts) appears.

- To connect to a hot spot, click the circle. If the circle shows a lock symbol, expect to be prompted to enter a key or password. The inside of the circle blinks while your system tries to connect. Once connected, the icon is surrounded by parentheses. An icon for the connection appears at the bottom right of the Frame. By clicking an access point icon you are indicating that you do not want to collaborate through a mesh network – which other XO icons are shown may change accordingly.
- To disconnect, hover over the circle, and choose Disconnect on the menu. Or hover over the icon in the Frame, and choose Disconnect on the menu.

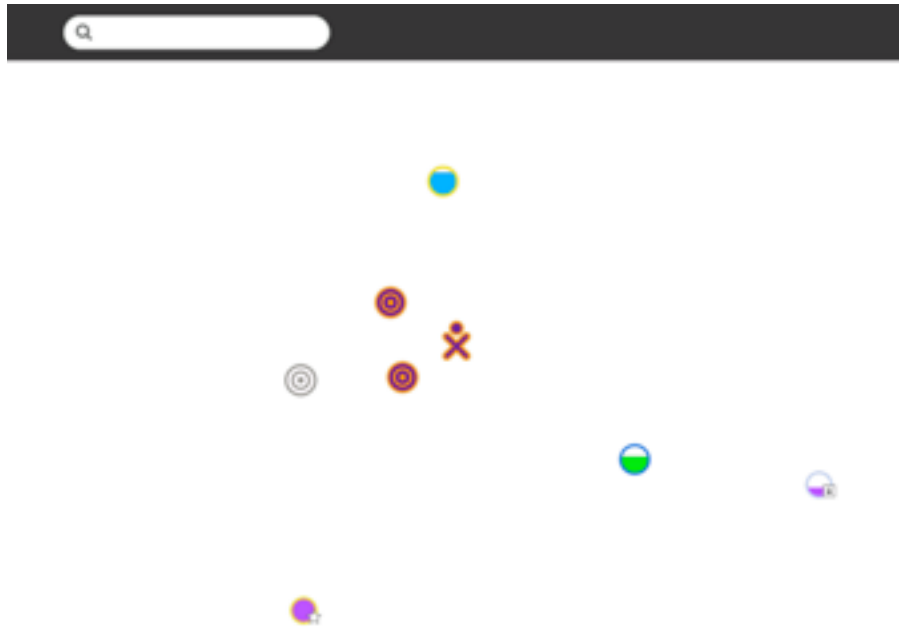
A more detailed illustration guides you on how to connect through an access point. See section on *Connecting through an Access Point from the Neighborhood View*.

Connecting through an Access Point from the Neighborhood View

A primary goal of the Sugar learning platform is enabling students to learn and work together. In a wireless environment, an access point (AP) is a device that allows your computer to connect to an existing set of communicating devices. The access point usually has a direct connection to the Internet, and can relay data between the wireless devices and the devices it can access.

You can connect from the Neighborhood View. You can see information about the connection on the Frame.

Step 1: Go to the Neighborhood View



Step 2: Choose an access point



Circles represent Networks (access points) on the Neighborhood View. Hover over a circle to see more information about an access point. An access point broadcasts a name (ESSID) to identify itself. You can also search for an access point by name in the search bar at the top of the page.

Note: If an access point is not broadcasting its name, the Neighborhood View may show that AP with some other name.

The fill level of a circle indicates the signal strength of its associated access point. The color of the circle is based upon the name of the access point. A lock icon identifies networks that are secured and require a key (passcode) to use. A star icon identifies access points that have been previously used (favorites).

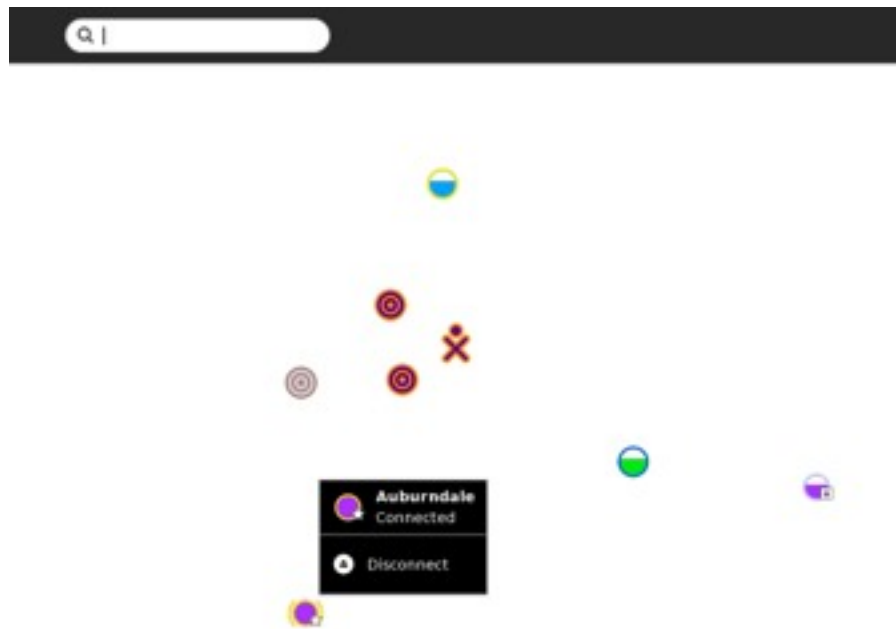
Step 3: Activate a connection

To activate a network connection, click once inside the circle that corresponds to your chosen access point (or click the Connect option in the hover menu).

While the connection is being established, the inside of the circle blinks. Once the connection is established, the bottom edge of Frame contains an icon for it. If for some reason the connection fails, the circle stops blinking. Sometimes it is necessary to try several times before the connection is established.

If the access point is secured and requires a key, a dialog prompts you for the required information. Different access points may require different types of keys. Before entering the key, be sure to select the correct type from the pull-down menu that is presented.

Step 4: Checking the connection



A hover menu details the connection status.



You can check the status of your connection from the Frame (from any view). By hovering over the circle icon, you can find details about your connection status in a hover menu.

Note to parents and teachers

Collaboration between learners is one of the most important features of Sugar. To enable collaboration in a classroom or home setting, it is necessary to establish the same type of connection for each computer. Computers can be connected through a School Server, or an access point.

When using an access point for the connection, the computers must all use the same Jabber server in order to collaborate. Please refer to the Sugar Control Panel discussion in the Personalizing Sugar chapter for details regarding the configuration of Jabber.

Additional hints



You make your connection from the Neighborhood View.



Your current connection status is shown on the Frame. Also, the hover menu on the access point icon indicates "Connected". It sometimes takes 2–3 tries to connect. To disconnect, select "Disconnect" from the hover menu that appears in either of the network status menus (See Step 4 above).



Circles represent access points. The fill level indicates signal strength.



Access points that require keys have a lock icon. The color of the circle is calculated from the ESSID of the access point. The name of the access point is displayed when you hover over it.



"Favorite" access points have a star.



You connect by clicking the center of the circle. The center of the circle blinks while the laptop is trying to connect.



Once the connection is made, the icon is surrounded by parentheses.

Group View

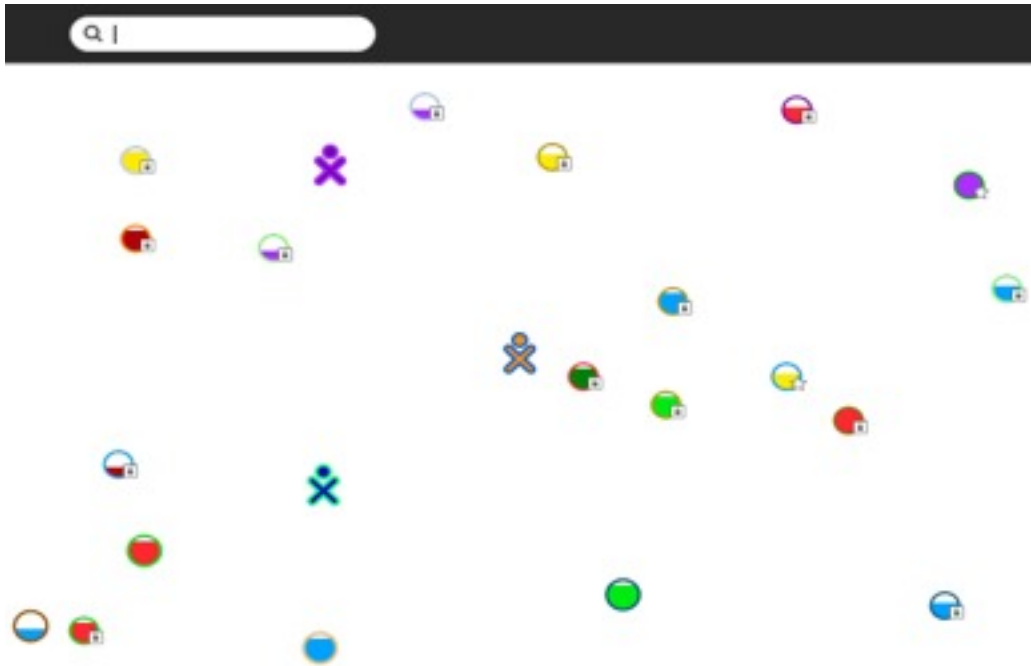
The Group View shows you your friends. (XO icons that are dimmed represent friends who are currently offline.)



To show the Group View, click the Group icon on the Frame or press the **F2** key.



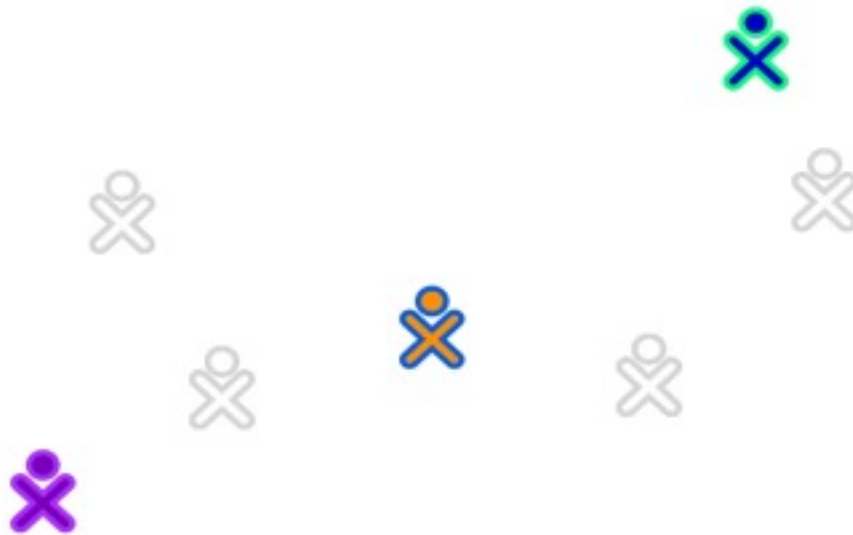
Adding a friend



You add friends to the Group View from the Neighborhood View.



When you hover over an XO icon, the *Make friend* menu option appears. Click this option to add that person as a friend.



Your new friend's icon then appears in the Group View.

Removing a friend



You can remove a friend from the Group View using the hover menu. Click *Remove friend*. That person's icon disappears from the Group View.

Inviting a friend



From the hover menu, you can also invite friends to join your current Activity. There is more information about invitations and sharing in the Collaborating chapter.

The Journal

The Journal Activity is an automated diary of everything you do within Sugar. Sugar Activities use the Journal as a place to save your work. You can use the Journal as a place to revisit old work, to resume incomplete work, to organize your completed work, and to reflect upon your progress as a learner.

The Journal keeps a record of what you do and the things you create such as photos, drawings, and writings. You can search for items in the Journal or sort entries by type or date. You can also click an entry to get a detailed view. You can resume an Activity by clicking the icon for that entry.

The Journal also supports external storage media such as a USB device or SD card. When you plug a USB device into a computer or laptop, you can access the contents of the USB device using the Journal. Click the USB icon to see the content on an attached USB storage device. You can also copy information from the Journal onto removable media—such as a USB device—as a means of backing it up. If you are connected to a school server, you can access its backup system.

Showing the Journal



To show the Journal, click the Journal icon on the Frame.

Features of the Journal



The Journal View contains a menu and a list of journal entries:

1. Star

You can mark important entries to help them stand out in the list by clicking the star icon for that entry. When you click the star icon, the star is colored in.

2. Icon

Each Journal entry has an icon. The color of the icon shows who created the entry. For example, if you copy a photo from a friend, the photo's icon has your friend's colors.

You can launch the Activity for the entry by clicking the icon.

A hover menu may reveal additional options. In particular, *Erase* deletes that entry from your Journal.

Caution: "Erase" deletes any data associated with the entry shown. For example, if you delete an entry that shows that you installed an Activity, you delete the Activity as well.

3. Entry name

Each entry has a name. You can edit the name by clicking it. If the Journal view is showing the contents of a removable storage device, the Linux file name is shown here, with the path and the file name extension stripped off.

4. **Buddy icons**

If other participants joined you in this Activity, icons in their colors appear here.

5. **Elapsed time**

The Journal displays the time since the most recent change to the entry.

6. **Detail view button**

Click this button to see detailed information about the entry. See *Journal detail view*.

7. **Scroll bar**

When there are more entries in the Journal than can fit on the screen, you can use the scroll bar to scroll through them.

8. **Search box**

Type words in the box to search for entries that match those words. Entries are displayed when they contain all of the typed words. Comparison will be against all of:

- the entry name field
- the description field (see *Journal detail view*)
- the tag field (see *Journal detail view*)

Note: the small **x** button at the right of the box shows that searching is being applied. To cancel your search, click on that **x**.

9. **Select by type**

Choose an entry type to display only entries of that type. Types include the Activity that created an entry, or the object type, such as, picture, sound, text, and so on.

10. **Filter by date**

You can limit the Journal View to entries made within the past day, week, or month.

Journal Detail View



The Detail view appears when you click the Detail view button for an entry. This view lets you examine and annotate the entry.

1. Back icon line

You can click anywhere in this line to return to the main Journal View.

2. Star and Icon

These items duplicate their functions on the main Journal view—a star represents a special, never-deleted Journal entry and the icon color indicates who created it originally.

3. Thumbnail image

Each entry has a thumbnail image that is created automatically. The image shows the Activity screen when the last change to the Journal entry was saved.

4. Entry name

You can change the name of the entry by clicking it and typing in a new name.

5. Elapsed time

Displays the time since the most recent change to the entry.

6. Description field

You can type a description of the entry, which you can use to find this entry later using the Search box in the main Journal view. Use a description to remind you of what you did. For example: *Flowers I saw on the hike to the waterfall.*

7. Tag field

You can enter search tags. Use keywords to describe a journal entry so that you can find it later using the Search box in the main Journal view. You can use keywords to help you "group" this entry, for instance by origin or context.

8. Participants

Displays the XO icons of each person who participated in a shared Activity.

9. Resume button

You can click the Resume button to resume an Activity. A hover menu may show additional options. For example, you can resume working with an image using either the Browser or the Paint Activity.

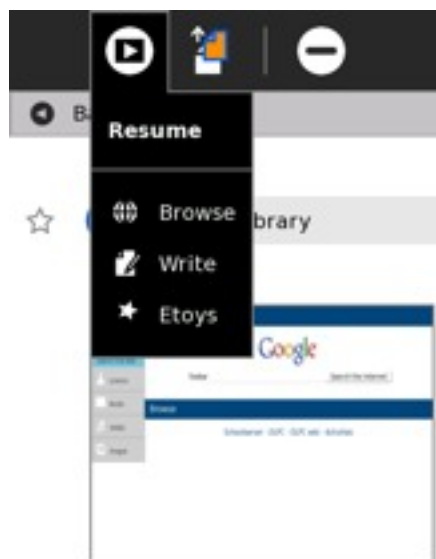
10. Copy button

You can copy a Journal entry to the clipboard (or to one of the removable storage devices shown on the bottom edge of the Journal screen) by clicking the Copy button.

11. Erase button

You can erase an entry by clicking the Erase button.

Caution: Once you erase an entry, it cannot be restored unless you have backed up your Journal.



When resuming from the Detail View, you can choose among different Activities.

A Note to Parents and Teachers

The Journal keeps a record of everything a child does within Sugar: which Activities they use and what content they create. It also keeps a record of group Activities, such as participation in a shared Write or Browse session.

The Journal encourages reflection. You can refer to it to assess a child's progress, much in the spirit of "portfolio" assessment. You can also use it as a catalyst for discussion with your child or student. We encourage the use of the description field within the detail view of Journal entries as a place to annotate or comment up entries.

Personalizing Sugar

You can customize Sugar to meet your needs. You can change options such as:

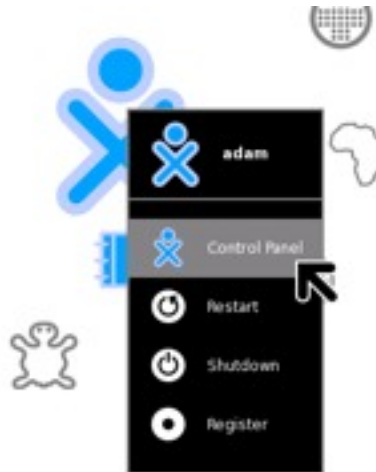
- the color of your XO icon
- your nickname
- the language used in the interface

The Sugar *Control Panel* is the place to configure your system.

Note: Many of the changes described in this documentation require that you restart Sugar for them to take effect. To do this, simply press **Ctrl+Alt+Erase** or (**Ctrl+Alt+Del**) on your keyboard.

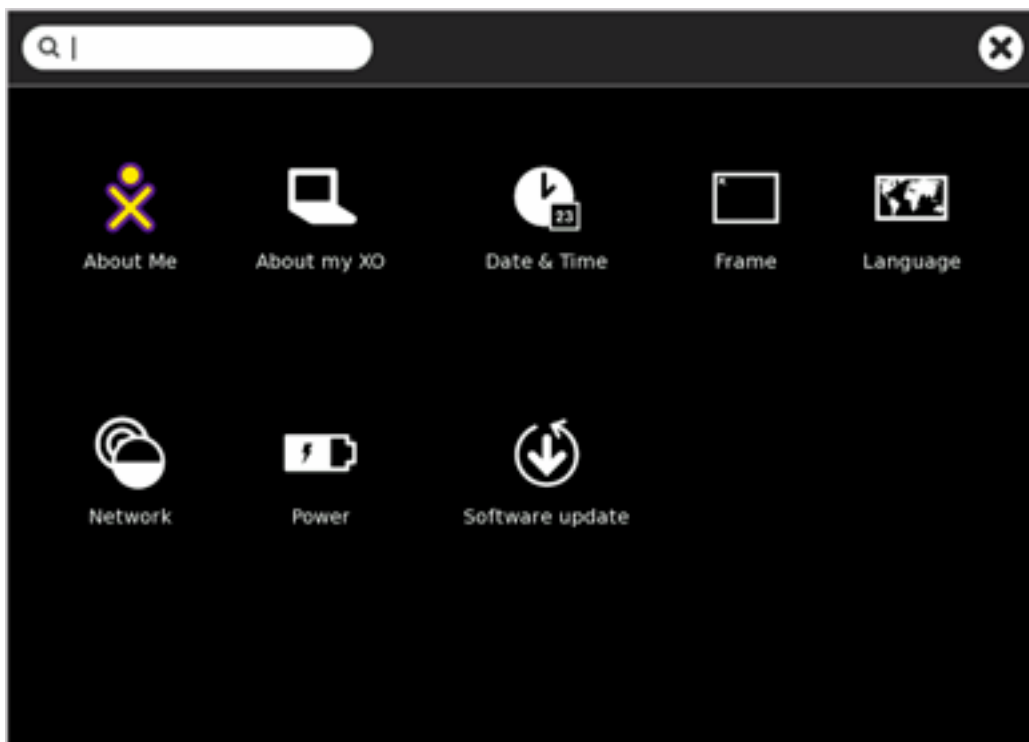
The Sugar Control Panel

To open or launch the Control Panel, hover over the XO icon in the center of the Home View and a menu appears. Select *Control Panel*. This brings you to the *Main Panel*.



The Main Panel

The *Main Panel* has eight categories of options:



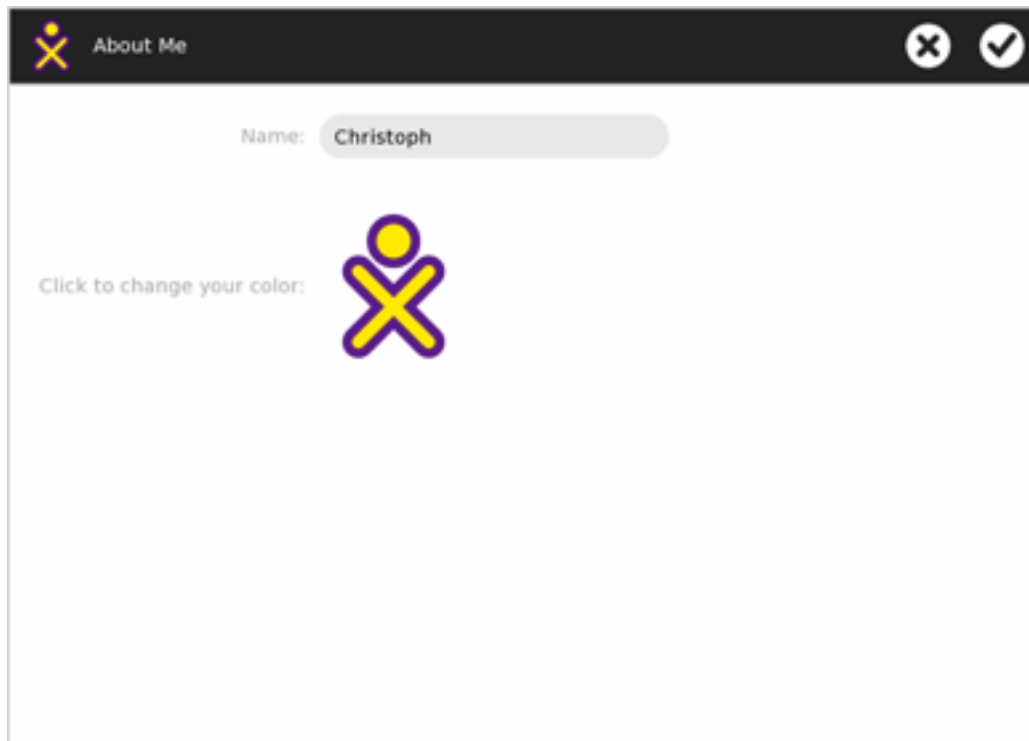
You can use the text box at the top of the window to search the available options. Options that don't match the search text are dimmed.

You accept changes made on the category panels by clicking the **OK** button in the top right corner. Clicking the **Cancel** button discards the changes and returns you to the main panel.

You can quit the control panel by clicking the **X** in the top right corner of the panel.

1. About Me

If you make changes on this panel, you must restart Sugar (**ctrl+alt+erase**) for them to take effect. **Caution:** You may lose any work you have open.



Name

You can change your user name in this box. The user name appears when you start Sugar.

Color

Click the XO icon to cycle through the colors for it. These colors show up in the Neighborhood View, Group View, Home View, on your Frame and when sharing with other Sugar users. There are almost 400 different color combinations available, which consist of a combination of six base-colors (red, orange, yellow, green, blue, purple) used as stroke-color and fill-color and three shades (light, medium, dark).

2. About My XO



Identity

Some computers, like the XO laptop, report the serial number here. You might need the serial number for repair service or to request a developer key.

Software

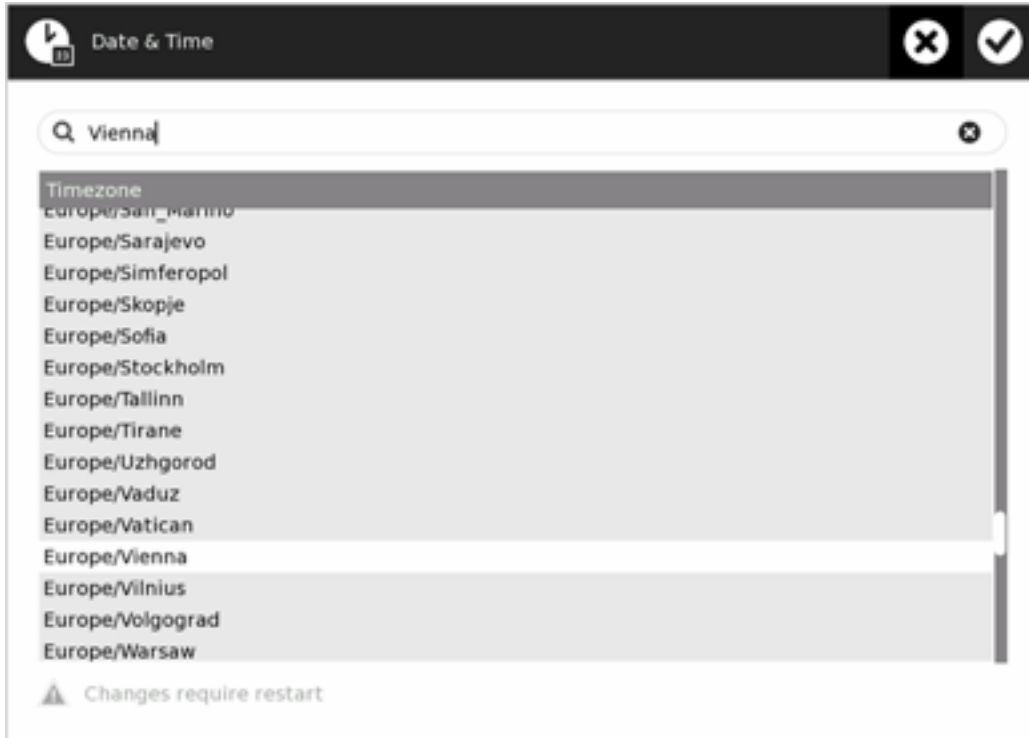
Here you can see which software and firmware version is currently installed on your system.

3. Date & Time

Note: If you make changes on this panel, you must restart Sugar (**ctrl+alt+erase**) for them to take effect. **Caution:** You may lose any work you have open.

You can set your time zone in multiple ways:

- Select a location such as *Europe/Vienna*.
- Enter an offset to Greenwich Mean Time (GMT) or Coordinated Universal Time (UTC), for example: *GMT+2*



4. Frame

Note: If you make changes on this panel, you must restart Sugar (**ctrl+alt+erase**) for them to take effect. **Caution:** You may lose any work you have open.



Activation Delay

You can change the delay for activating the Frame. You can set the delay separately for the corners and edges.

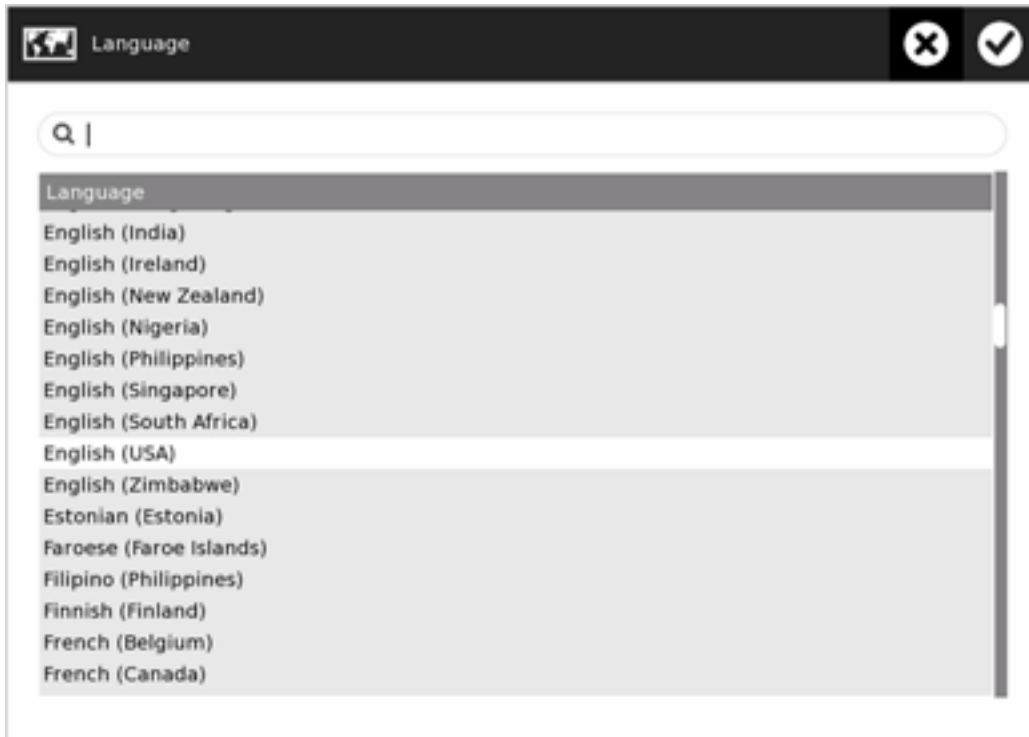
- "instantaneous" means that the Frame appears immediately when you move the pointer to that position (corner or edge).
- "never" means that moving the pointer to that position never activates the Frame.
- Values in the middle of the range indicate what fraction of a second the pointer must remain in the position before the Frame activates. The range is from 0.001 to 0.999 seconds.

In the default configuration the Frame is instantly shown when the pointer is moved into one of the corners of the screen.

5. Language

Note: If you make changes on this panel, you must restart Sugar (**ctrl+alt+erase**) for them to take effect. **Caution:** You may lose any work you have open.

You can select your system's default language. Even though your language might be included in the list, the translation might not be complete or available.



6. Network



Here you can enter the name of a collaboration server based on jabber. This allows you to share Activities with other people connected to the same server, even when they're located half-way around the world.

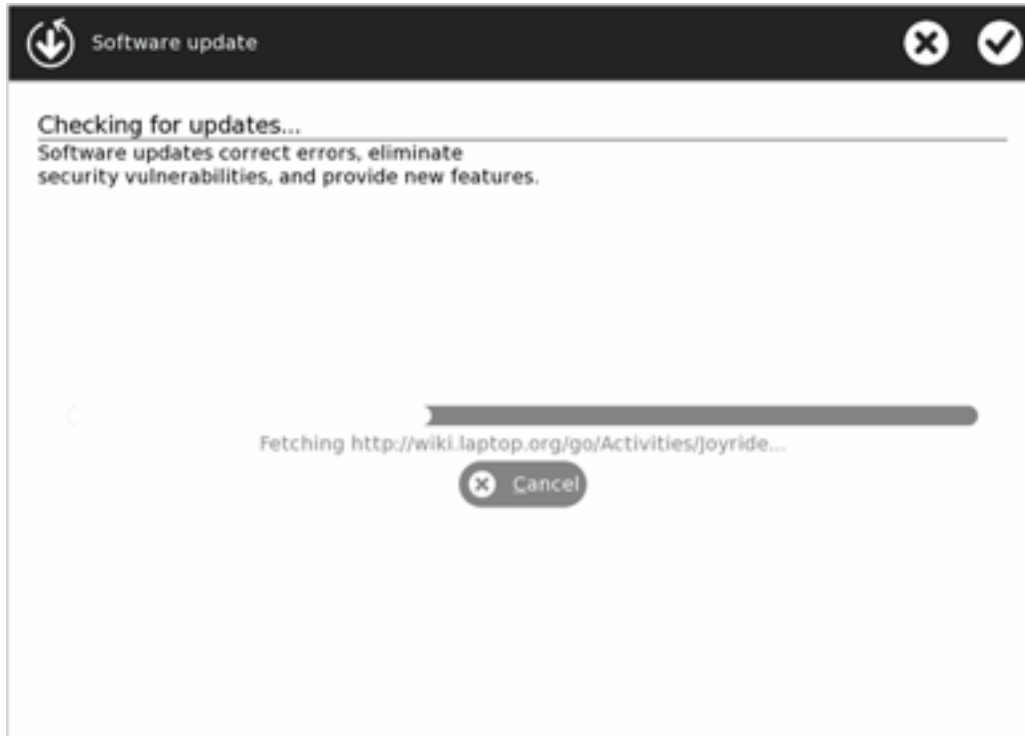
7. Software Updates

You can select, install, and update Activities on your system.

Checking for updates

If your system is connected to the Internet, it tries to fetch a list of all the available Activities.

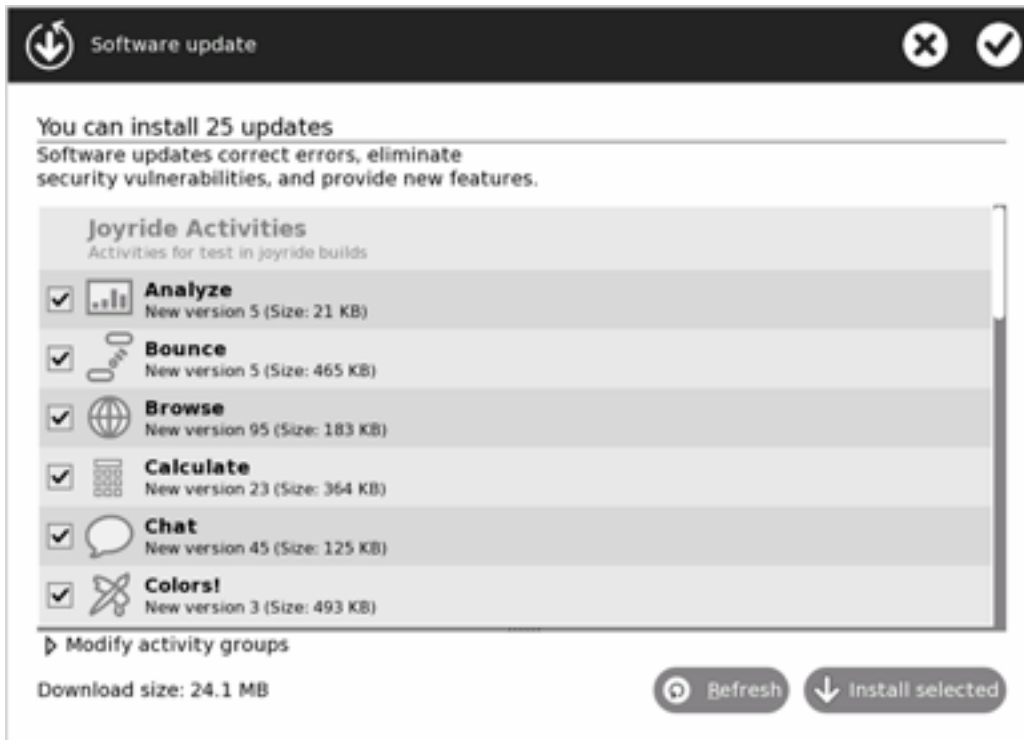
If your system isn't connected, the message, *"Could not access the network to check for updates"* appears.



Selecting updates

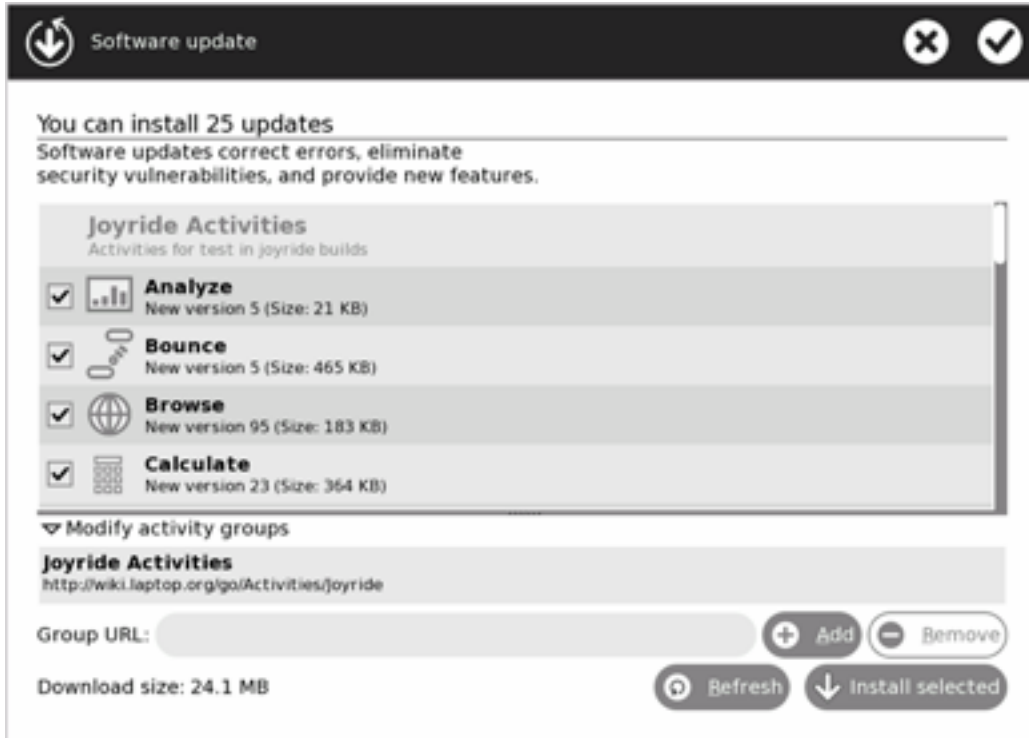
The panel shows a list of new or updated Activities that are available. The overview also contains information about the Activity's version and size. An Activity is selected if its check box contains a check mark.

1. Select the Activities that you want to install on your system, and clear the checkboxes for the ones you don't want to install.
2. Click **Install selected**.



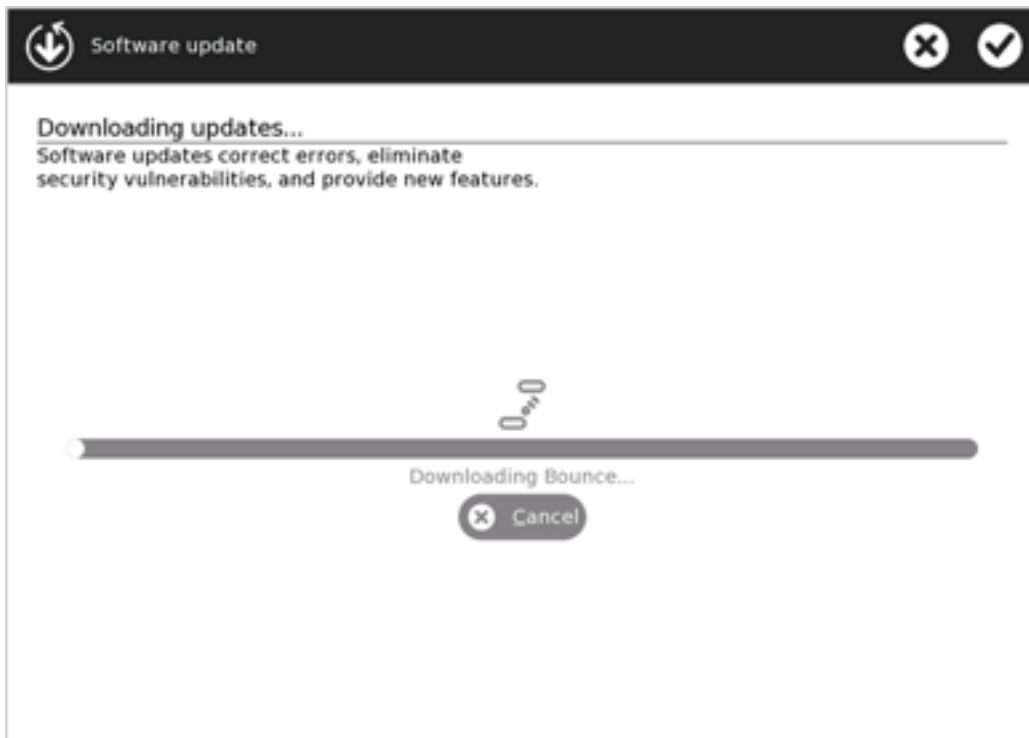
Modifying Activity groups

You can click on *Modify activity groups* to enter alternative activity groups.



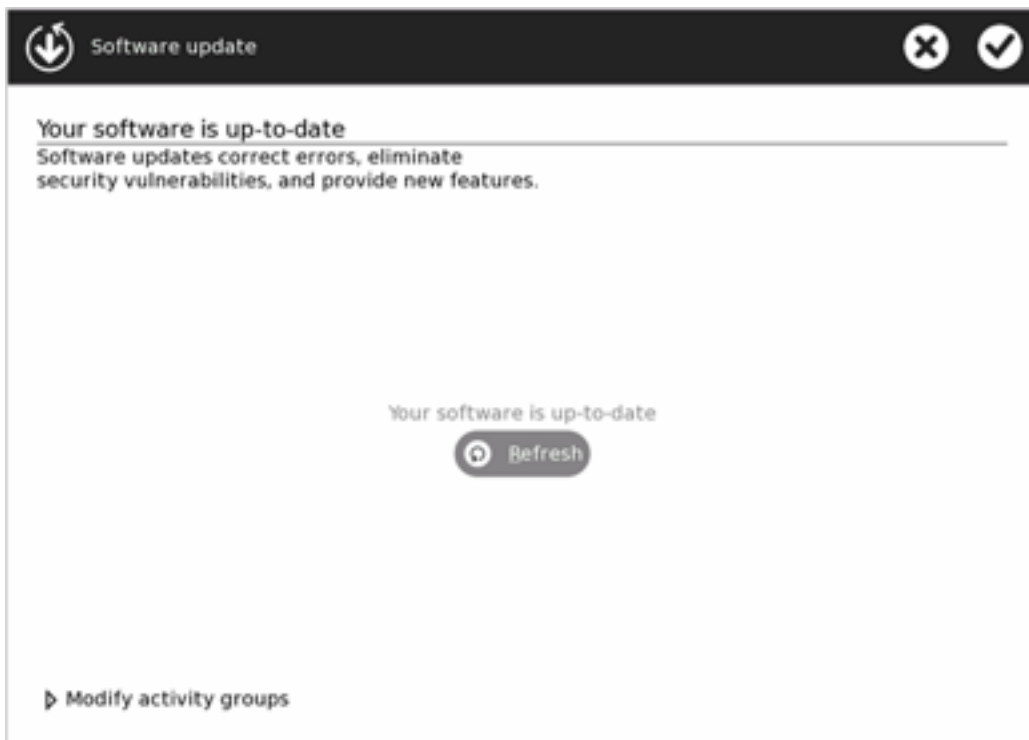
Downloading updates

A status view informs you of the download and installation progress.



Software is up-to-date

If all your Activities are up-to-date, you see the following message.



3. What is an Activity?

Sugar applications are called *Activities*. Activities include an application as well as sharing and collaboration capabilities, a built-in interface to the Journal, and other features such as the clipboard.

The Journal Activity is pre-installed. Other Activities can be distributed as part of an Activity Pack. There are many, many others you can install yourself.

Activities you have specified as favorites appear as a ring of icons around the XO icon in the center of the Home View. All the Activities you have installed are shown in the List mode of the Home View.

Some Activities allow Sugar users to work and learn cooperatively. For example, Write allows several users to collaboratively create a document. Read allows several users to read the same document or a teacher to share a book with an entire classroom. Memorize allows a group of users to play a game together.

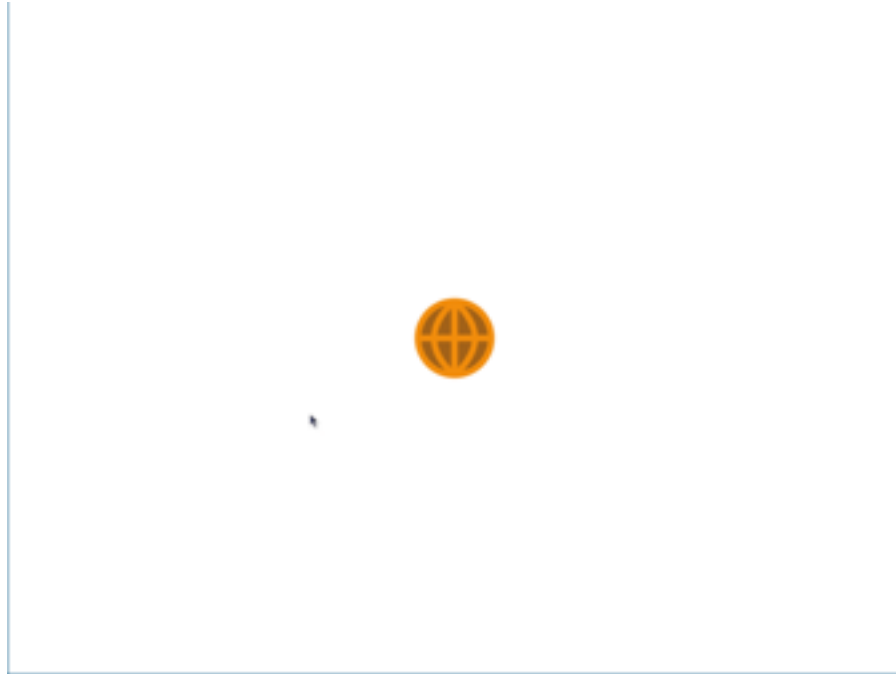
Another class of Activities allows users to write software. A variety of computer languages such as Logo, SmallTalk, CSound, and Python are supported within the TurtleArt, Etoys, TamTam, and Pippy Activities.

Launching Activities

You can launch an Activity in four different ways:

- Click the Activity icon in the Home View.
- Resume an Activity from the Journal View.
- Join a shared Activity from the Neighborhood View.
- Accept an invitation by clicking the invitation icon on the Frame.

When you launch an Activity, its icon flashes in the middle of the screen while the Activity loads.

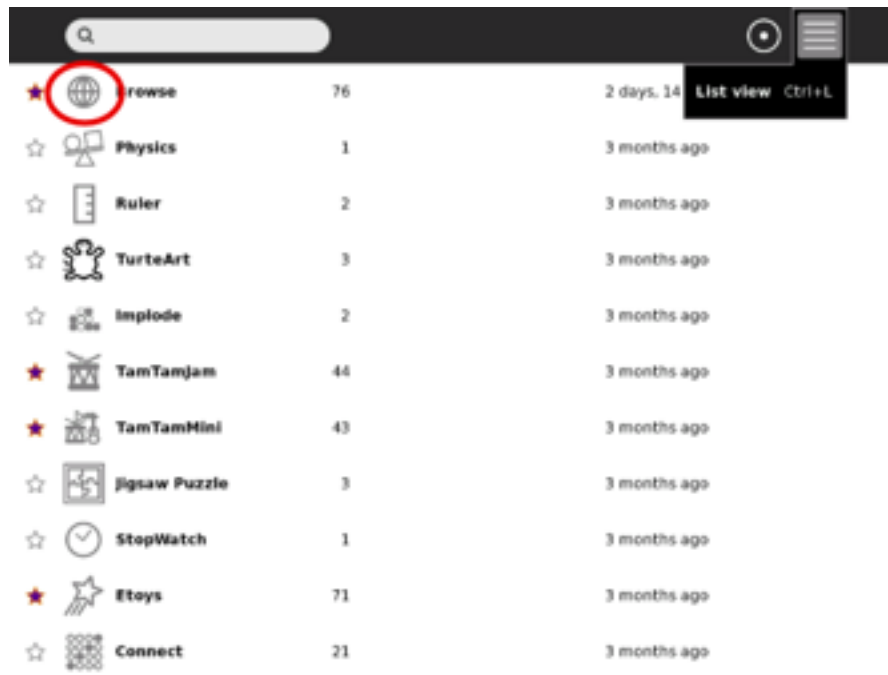


Launching from the Ring view



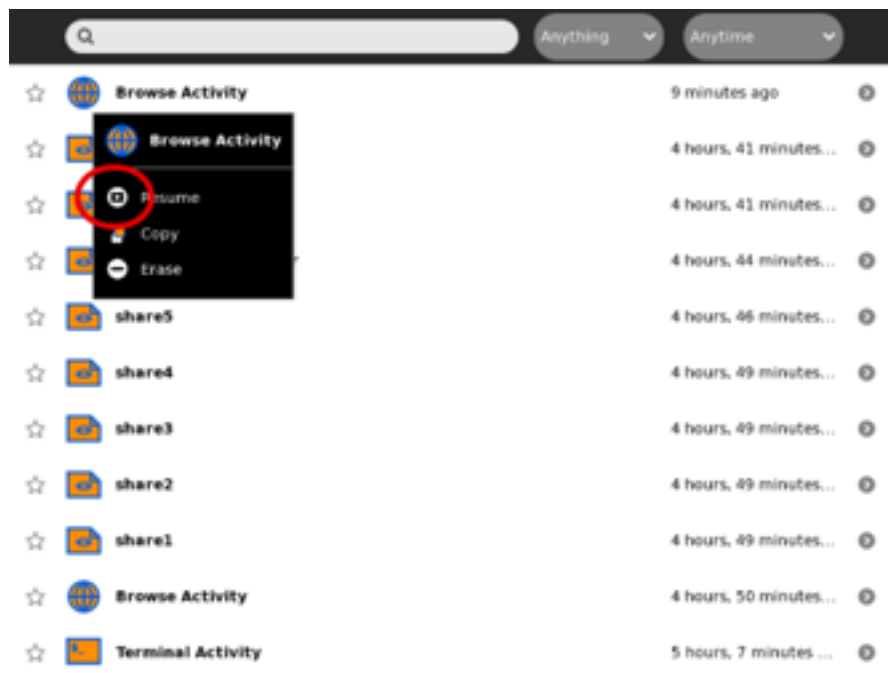
Click the icon or click an option on the hover menu.

Launching from the List view



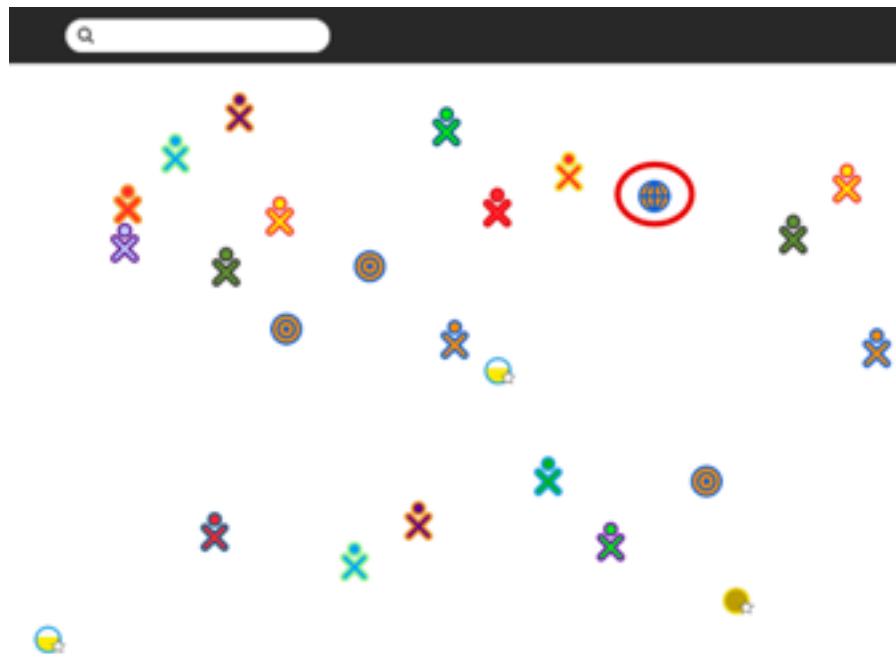
Click the icon or click an option on the hover menu.

Resuming from the Journal



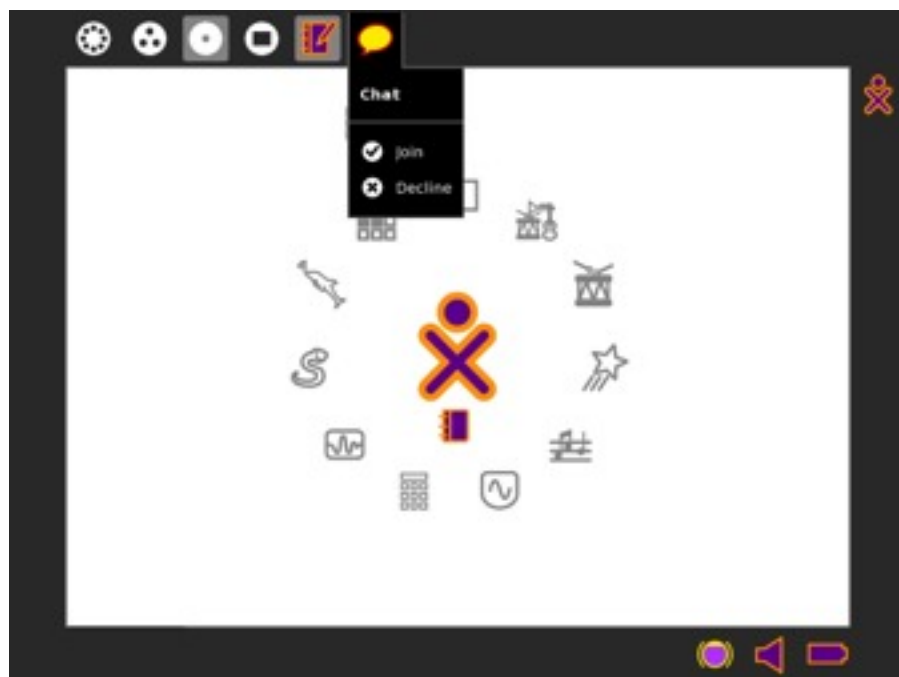
Click the icon or click *Resume* on the hover menu.

Joining a shared Activity



Click the icon or click an option on the hover menu. More details about joining a shared activity will be discussed in *Chapter 4 Collaborating*. Please see topic on *Joining a Shared Activity*.

Joining an Activity by accepting an invitation



Click *Join* in the hover menu on the Frame.

4. Collaborating

There are two similar but different modes of collaborating within Sugar:

- Send an invitation to collaborate on an Activity
- Share an Activity in the Neighborhood View

The difference between the two modes is subtle but important. When you send an invitation, you have specific control over who joins you. When you share with the neighborhood, you are opening your Activity up to anyone who is visible in the Neighborhood View.

Sending an invitation

If you want a friend to join you in an Activity, send them an invitation. You can invite as many friends as you'd like by following the steps outlined below. The steps use the example of inviting someone to talk in the Chat Activity.

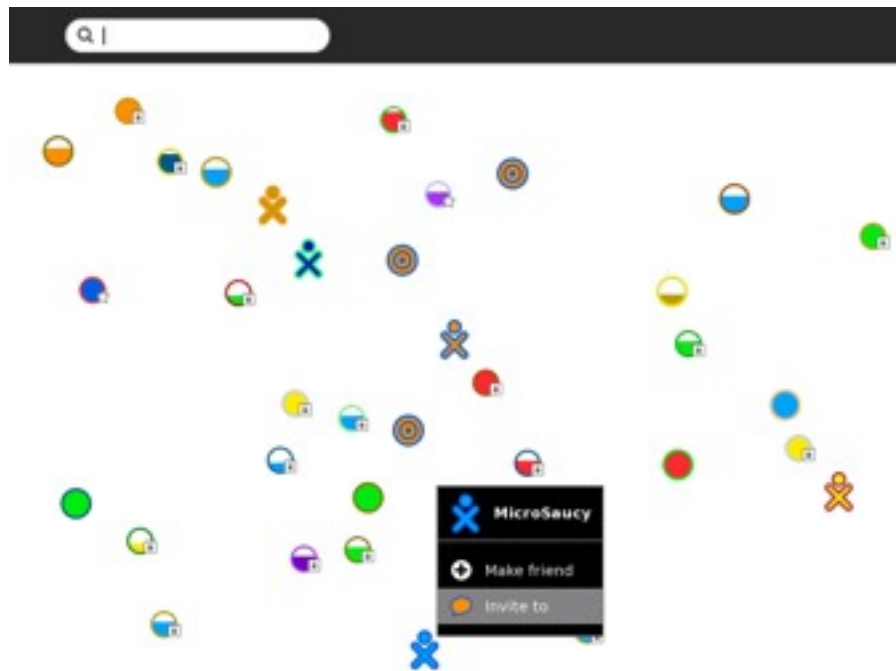
Step 1: Start the Activity

You must be running an Activity in order to send an invitation. For example, open Chat from the Home View.



Step 2: Go to the Neighborhood View or the Group View

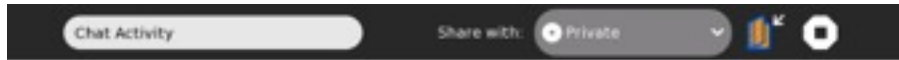
Step 3: Hover over the icon of the friend you'd like to invite, and click *Invite to*



Your friend receives the invitation.

Step 4: Return to your Activity and start collaborating

For example, switch back to the Chat Activity.



Receiving and Accepting an Invitation

Step 1: Notice that you have an invitation

The notification of an invitation appears in the upper-left corner of the screen and on the Frame.

The invitation is an Activity icon. The icon is the color of the person who sent the invitation.

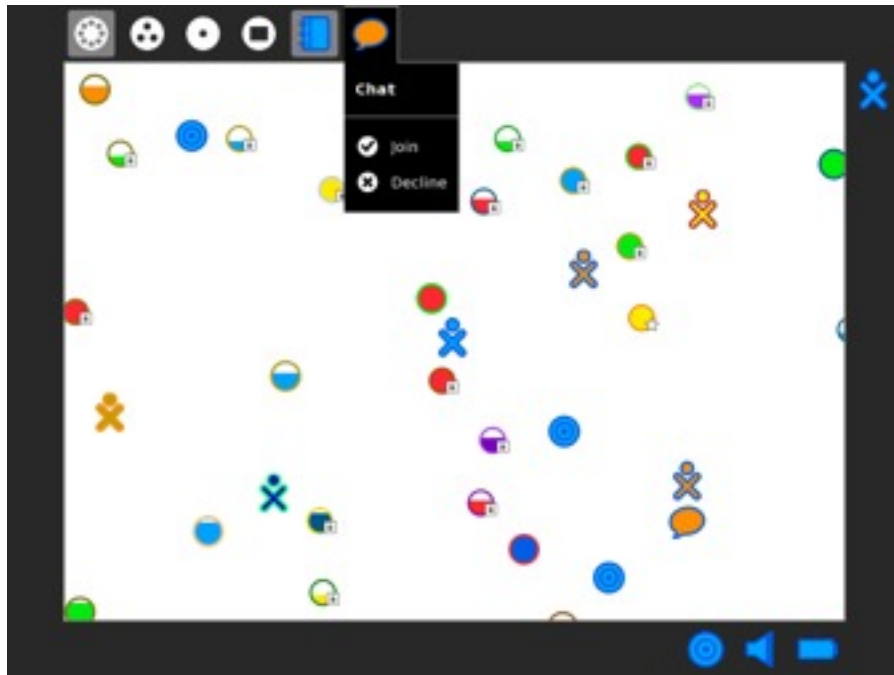


Step 2: Click the icon to accept the invitation

You can accept the invitation from the Neighborhood View or the Frame.



In the Neighborhood View, click the other user's icon.



On the Frame, click the invitation icon, or click *Join* on the icon's hover menu.

Note: You do not have to accept an invitation. Just ignore it or click *Decline* on the invitation icon's hover menu.

Step 3: Start collaborating

As soon as you accept an invitation, you switch to the Activity.

Chat Activity Share with: My Neighborhood  

Marvin is here

Chat Activity Share with: My Neighborhood  

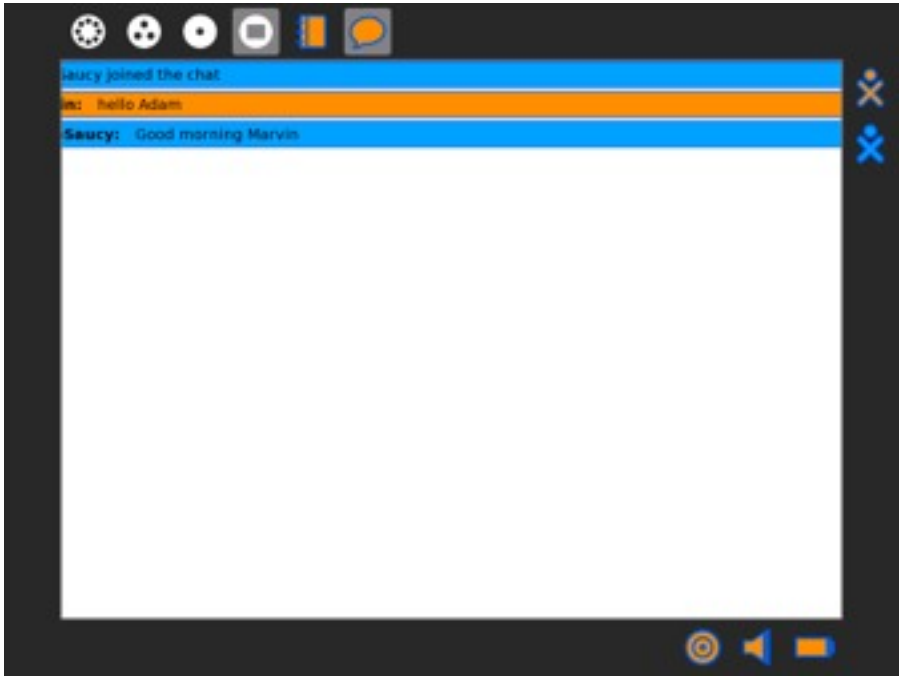
MicroSaucy joined the chat

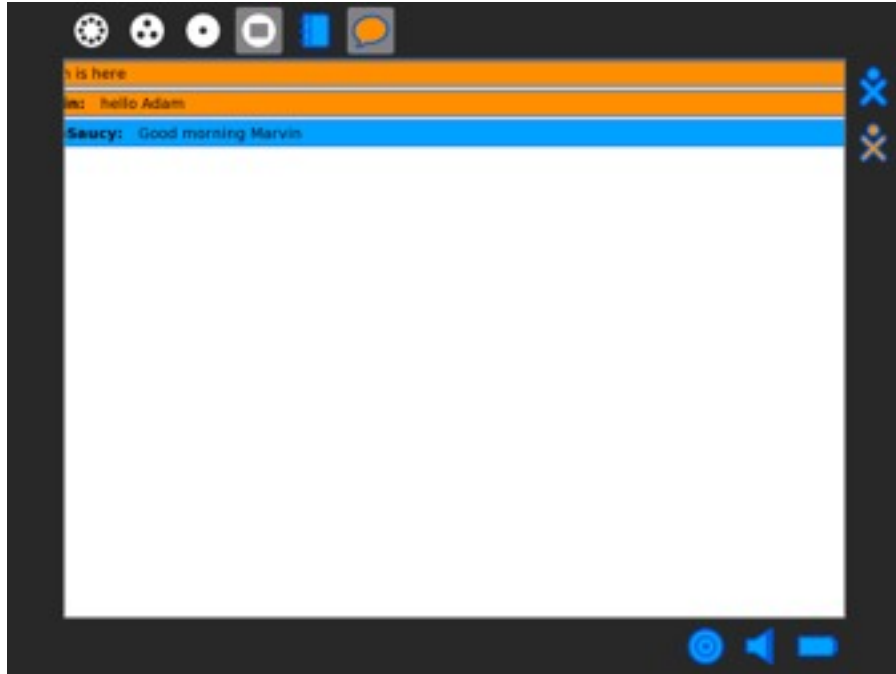
Marvin: hello Adam

MicroSaucy: Good morning Marvin



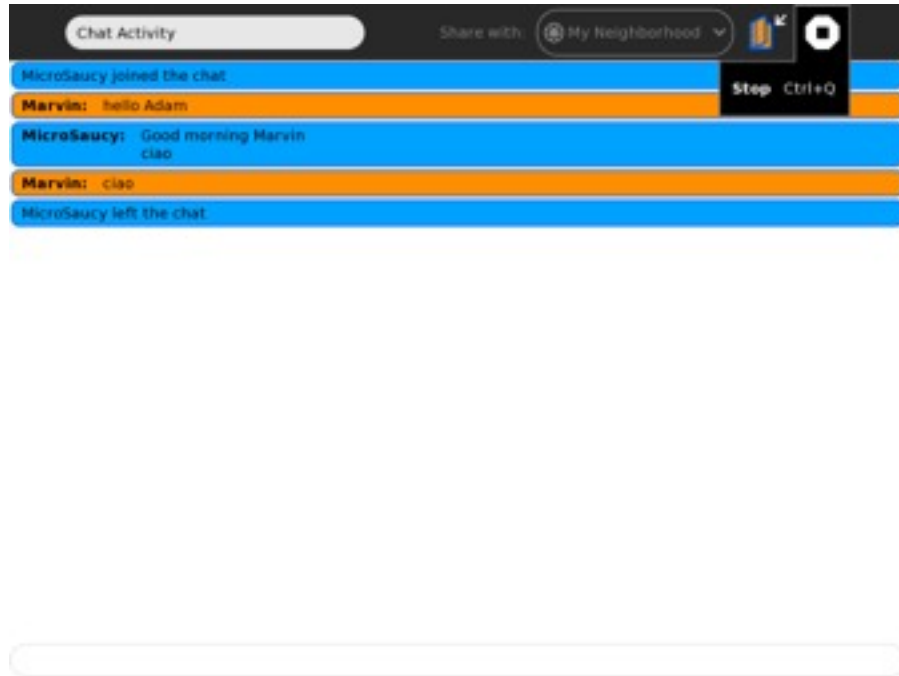
While you are collaborating, your collaborators' icons appear on the Frame.





When you leave the Activity, you end the collaboration.





Sharing an Activity

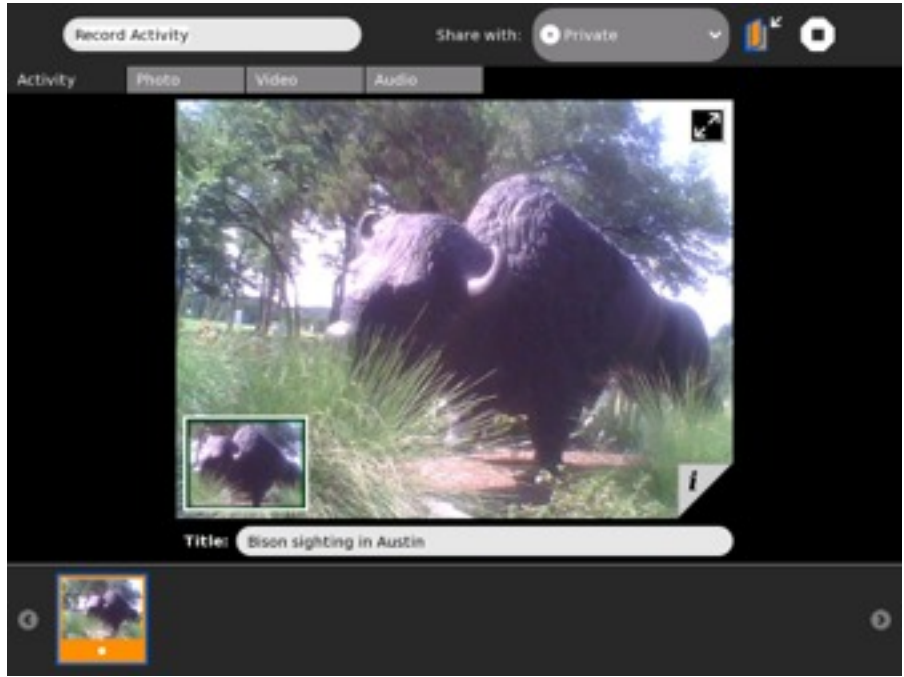
You can share an Activity if you want anyone from your Neighborhood View to join you.

Step 1: Start the Activity

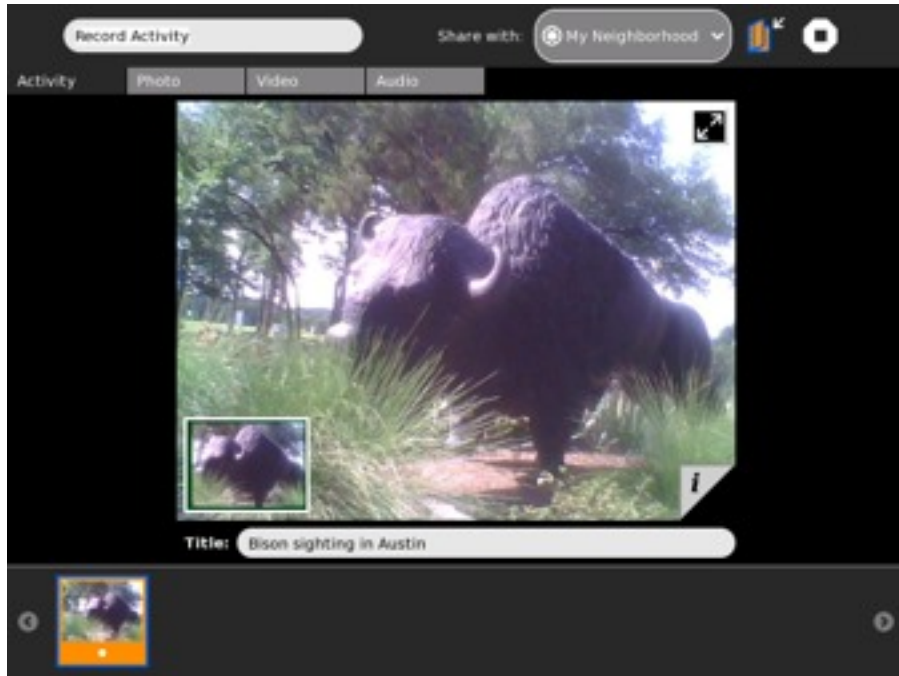
You must be running an Activity in order to share it. For example, open Record from the Home View.



Step 2: Once the Activity is running, select the Activity tab.



Step 3: On the *Share with* menu, click *My Neighborhood*



An icon representing your shared Activity appears in the Neighborhood View.



Your XO icon appears above the Activity icon in the Neighborhood View.

Joining a shared Activity

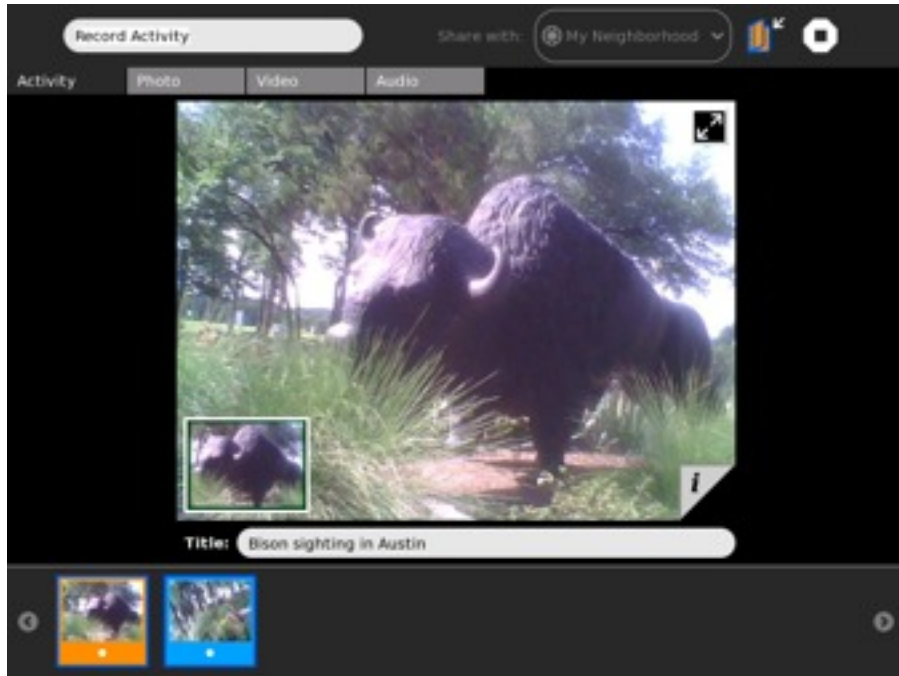
You can join any Activity that appears in the Neighborhood View.

Step 1: From the Neighborhood View, click the icon representing the shared Activity you would like to join



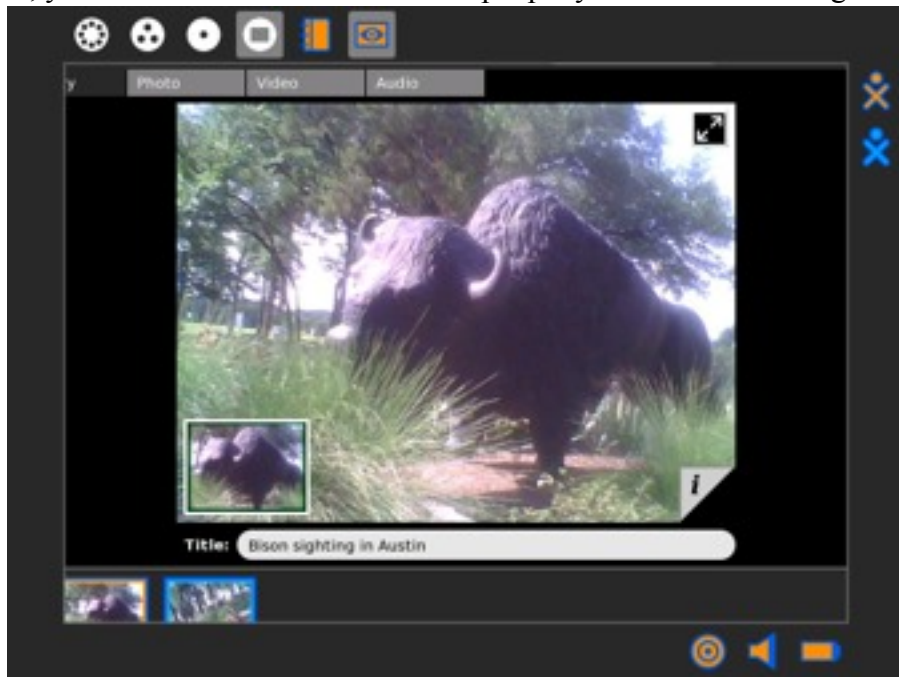
Step 2: Start collaborating

The Activity opens as soon as you click the Activity's icon.



The approach to collaboration varies from Activity to Activity. In the Record Activity, thumbnails of photographs are shared. The photograph's frame is in the same colors as the XO icon of the person who took the photo.

On your Frame, you can see the icons of all of the people you are collaborating with.



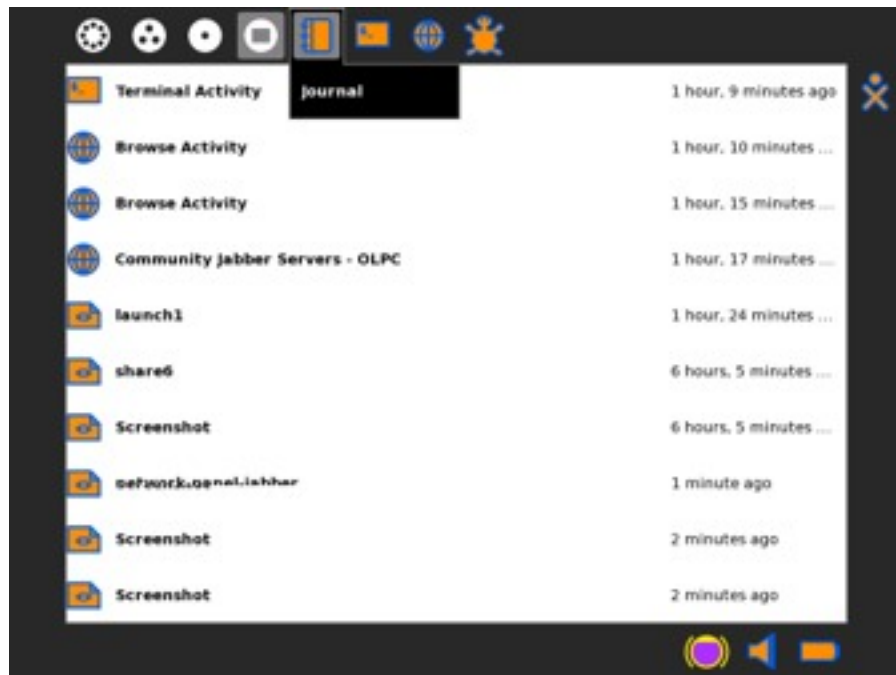
You can exit a shared Activity at any time by clicking the Activity tab and clicking the Stop icon.

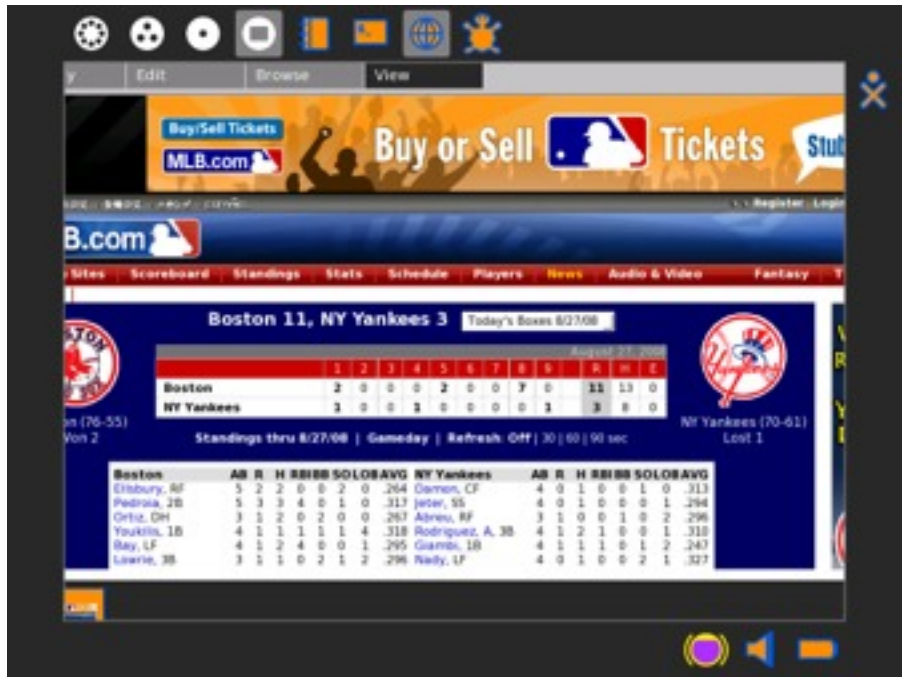
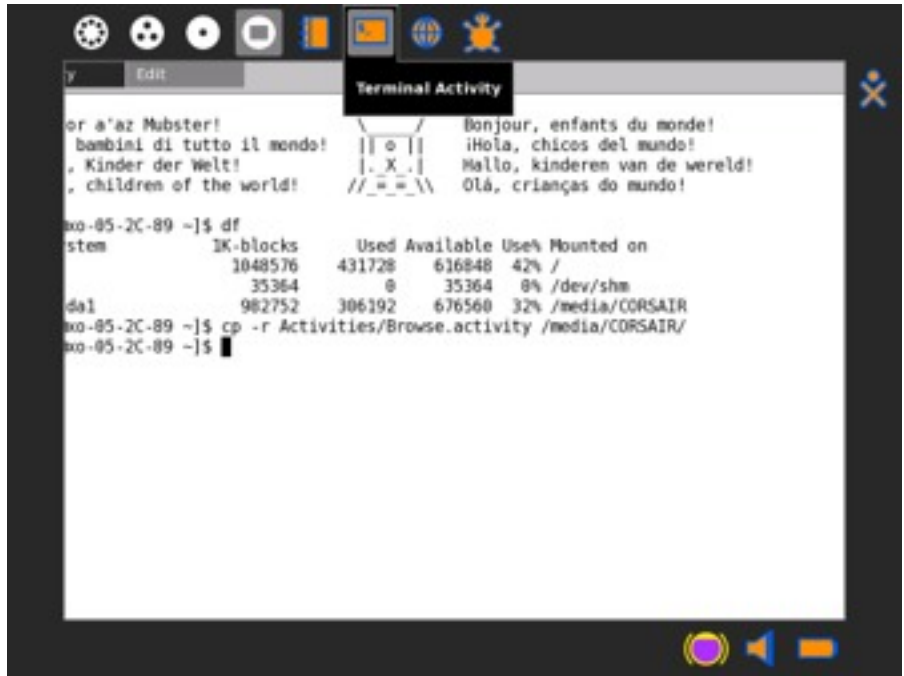
5. Switching Activities

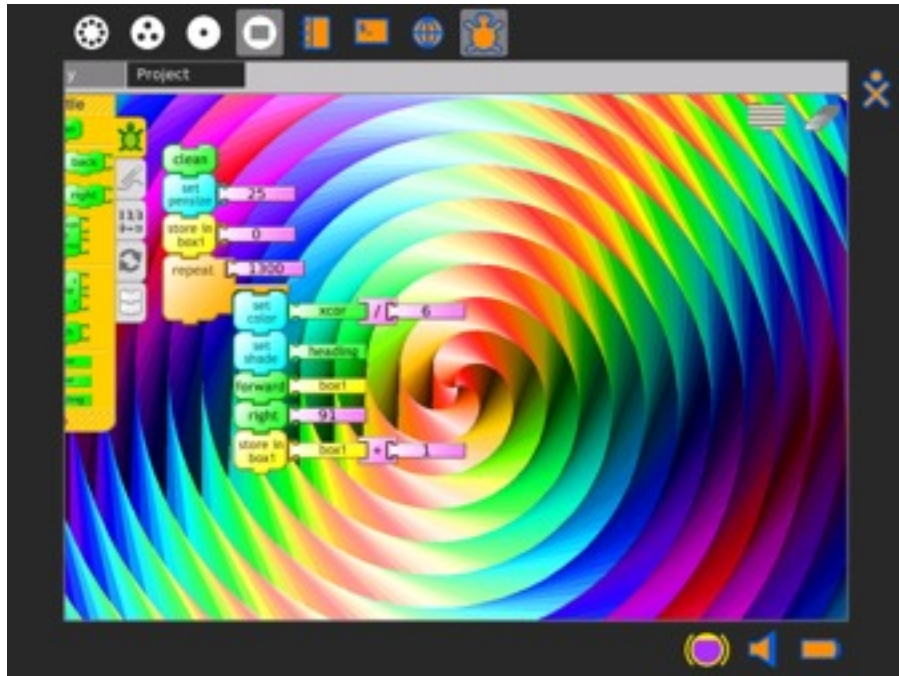
You can switch between Activities in two ways:

- In the Frame, click the icon of the Activity you want to switch to.
- Press **alt + tab** to cycle through your open Activities until you reach the one you want.

Switching using the Frame







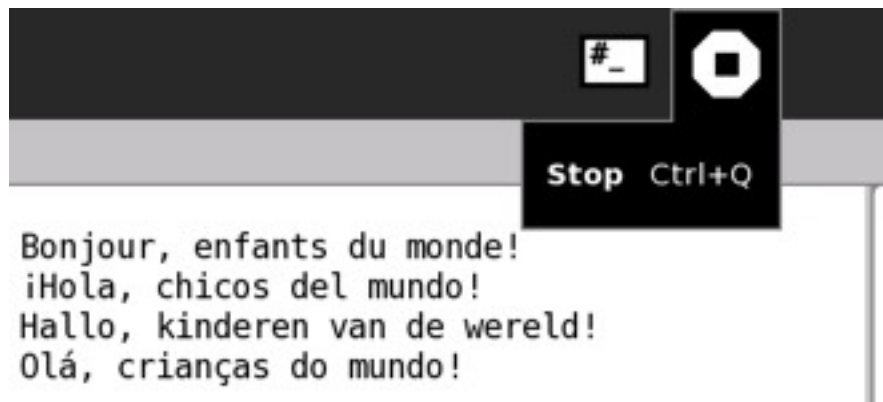
Note: You can use the Clipboard and the Journal to copy data between Activities.

6. Exiting Activities

You can exit an Activity in three ways:

- Click the "Stop" icon in the Activity's tool bar.
- Press **ctrl + q** (Note: pressing **alt + escape** also works in most cases).
- Click *Stop* on the hover menu for the icon of the Activity you wish to stop.

Using the Stop icon



Stopping an Activity from the Frame



7. Installing Activities

You can install new and different Activities, which you can download and install from a Web site. Use the Browse Activity to download an Activity and then use the Journal Activity to install it.

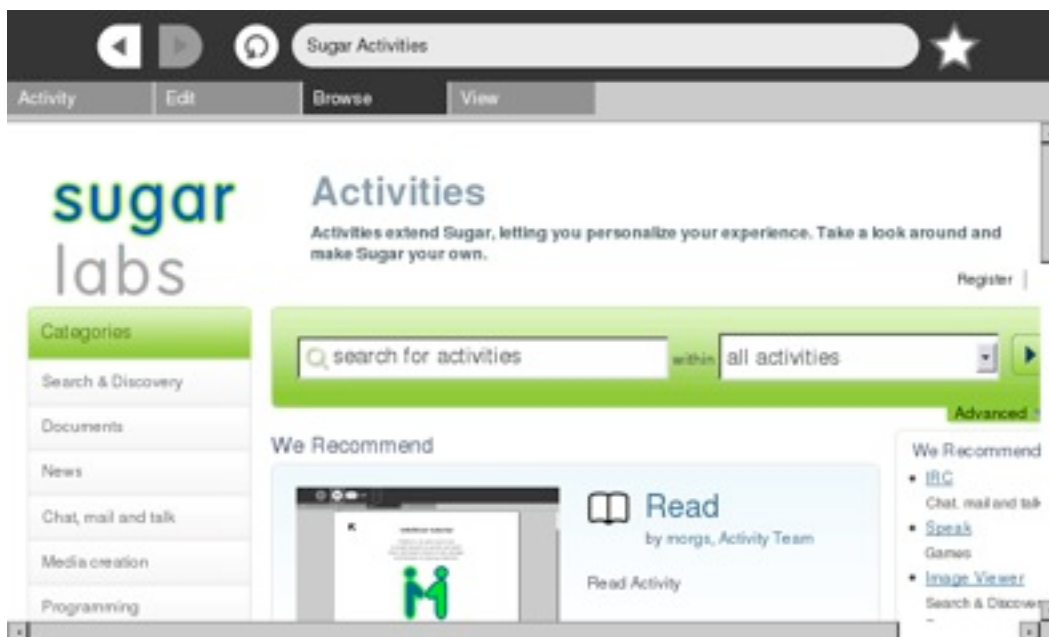
1. From the Home view, click **Browse** or launch the Browse Activity.



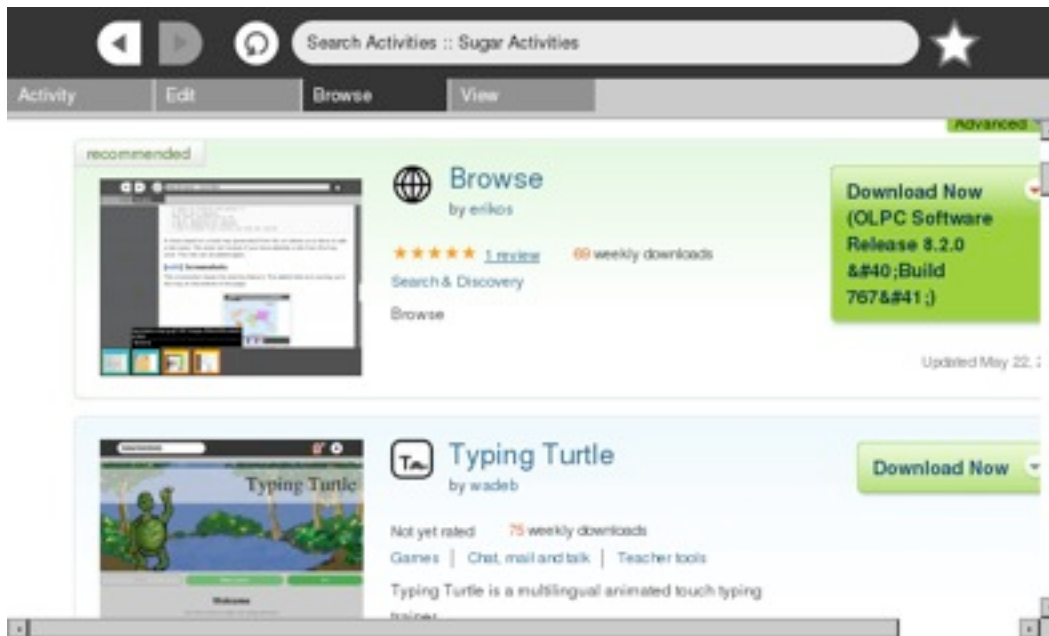
This will activate the Browse Activity and bring you to the Sugarlabs page.



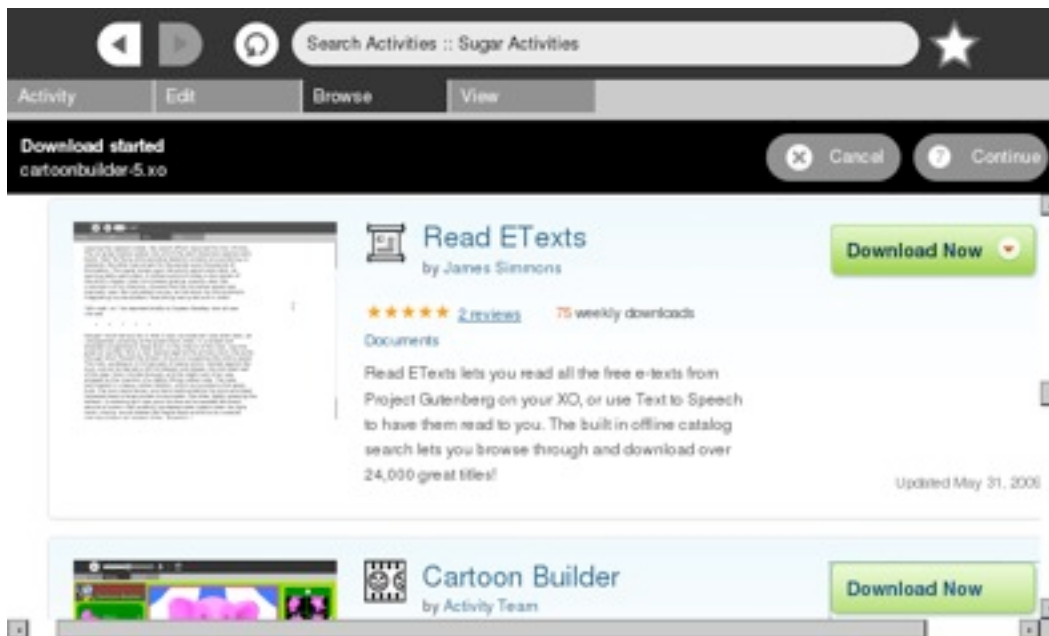
2. On upper right-hand corner of the Sugarlabs page, click on **Activities**. Otherwise, you may go directly to <http://activities.sugarlabs.org/en-US/sugar/>. This brings you to the Sugarlabs Activities page.
3. On the page are displayed new activities that you may download and install. By default, the page displays 5 of the most recommended activities. To view all new activities, specify *all activities* in your search and click the search button.



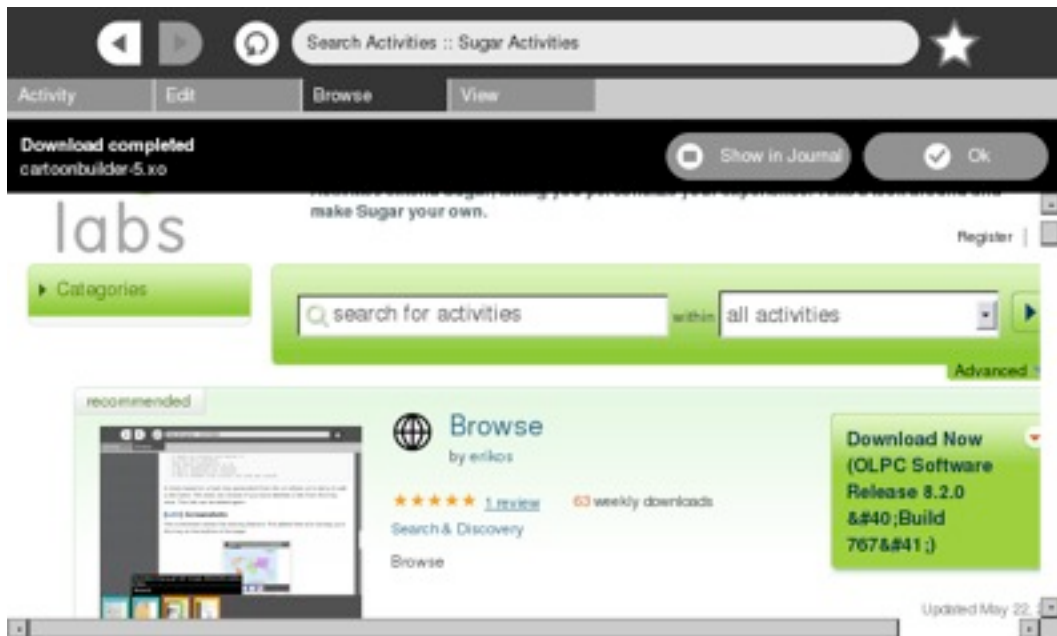
4. Each Activity has a corresponding download button. Find the Activity you are interested in and click **Download Now**.



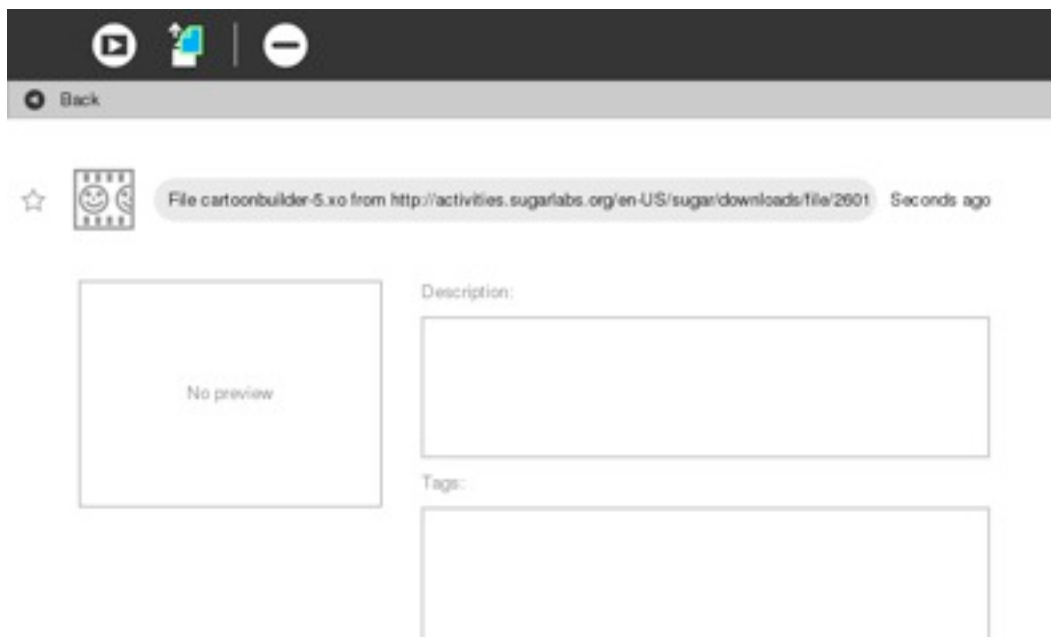
5. A message at the top of your screen will appear saying that the download has started. Click **Continue** to proceed or wait until the timer/counter shown in the **Continue** button reaches 0. Otherwise, click **Cancel** to abort the download.



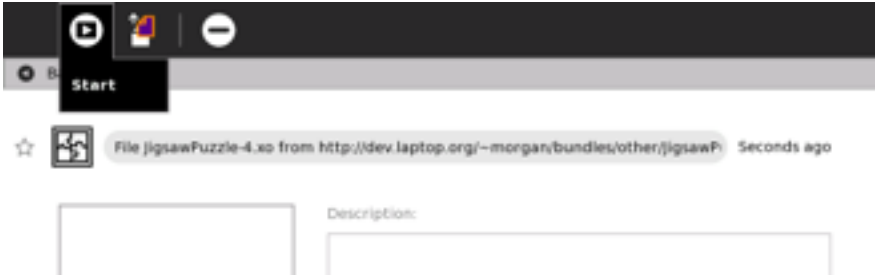
6. When down is complete, a message at the top of the screen advises you that download has been completed. Click **OK** to finish with the installation at a later time. You will remain in the Browse Activity to continue browsing or download other activities in the displayed list.




Otherwise, click the **Show in Journal** button to install and launch the downloaded Activity from the Journal.



- To install and launch the Activity, click the **Start** button at the top of your screen. Note that this new Activity will now be included in the list mode from the Home view.



8. You may also copy this Activity to another stick or USB. To do this, click the **Copy** button. This puts a copy of the Activity into the clipboard.
9. To delete the Activity, click the **Delete** button.
10. Note that you didn't install the Activity at the time you downloaded it, you can install it by opening the Journal. Click the Journal icon on the frame, open the detail view of the Journal entry by clicking the  icon on the right side of the entry.



Proceed to Step 7.

8. Going Beyond Activities

Sugar offers many ways to use a computer beyond just the display screen, although when you use Sugar in new ways, you can think beyond the display. Read on for new ideas of using Sugar beyond the Activity set and with the Activities currently available.

Create a slideshow

You can install a program called *feh* to display images quickly and offer an automatic slideshow of pictures.

What you need to begin:

- A way to take pictures, such as laptop or digital camera.
- A USB drive or SD card, and know the name of the device.
- An Internet connection.



Activity (step by step)

1. Take pictures of your family, school, home, and community with the Record Activity or a digital camera.
2. In the Journal Activity, drag the pictures onto the USB or SD icon on the Frame to copy the pictures onto a USB drive or SD card.
3. Open the Terminal Activity and click the root button.

4. Type the following command and then press **enter**.

```
yum install feh
```

5. Enter y for yes when prompted for permission to go ahead with the installation.
6. After *feh* is installed you can run your slide show by typing the following in the Terminal Activity:

```
feh -F -D 5 --scale-down /media/cardname/
```

where -F plays full screen and -D 5 plays the slideshow with a five second delay between images.

7. Press ctrl-q or Q to quit displaying the slideshow.

Ideas for Expansion in the Classroom

Create

Make artwork in the Draw Activity instead of taking pictures using the Record Activity for your slideshow pictures.

Create a digital art or photography gallery with all of your computers hanging on the wall or leaning as if they were easels.

Collaborate

Share pictures by copying files onto other student's SD cards or USB drives.

Have students collaborate with the Draw Activity by having each student draw for one minute, much like the Swarm Sketch site at <http://swarmsketch.com/>

Have students download pictures about a certain topic or use tags on sites like <http://flickr.com> to create a slideshow of only cats, dogs, or other pets.

Adapt

Think of a place that could display the computer slide shows for a practical purpose, such as offering changing advertisement at a store or restaurant. How could students make a business model for selling advertisements, designing slides, and displaying them on their slide show like a billboard?

Extend

Have students create collages or mosaics with more than one computer screen stacked on another, running the slideshows all at one time.

Research the command line parameters for *feh*. Can they modify the timing of the slideshow so that stacks of pictures create a larger image?

Explore

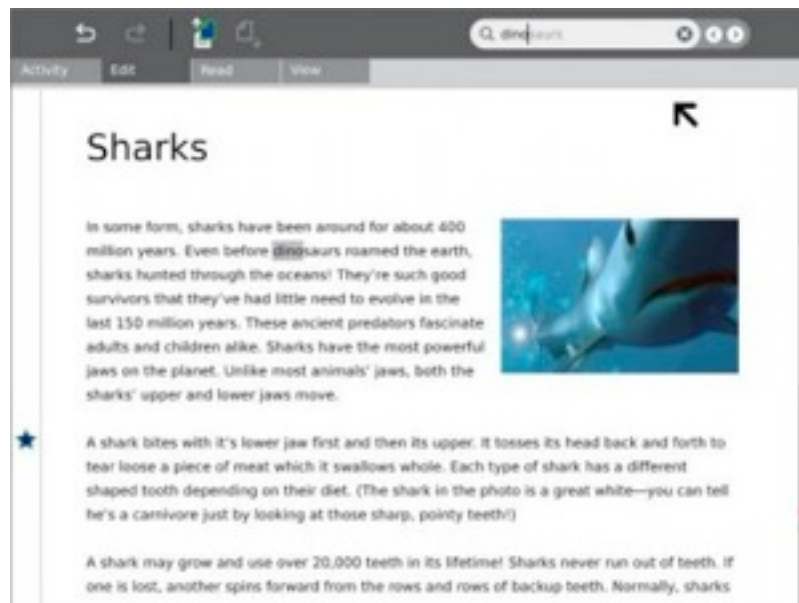
Could students use their slideshow to convince someone to purchase a product or make a decision?

Reflect

Make a video of your art or photography gallery premier or write a journal entry about your experience sharing photos or artwork.

Reading with Sugar

Read books that are stored on the computer or on the Internet. One way to read books is to open the Browse Activity, click the **books** link, and then click **encyclopedia**, **picture books**, or **dictionaries**.



The Sugar OS contains a library that offers many interesting reading materials in many languages. These books are sometimes called "ebooks" for electronic books, and Portable Document Format (PDF) files are one type of ebook.

Reading PDF files

The way to view PDF files is to select the file in the Browse Activity or in the Journal, and then click the arrow button to have the Read Activity open it.

The Read Activity and Watch & Listen Activity are two activities that are not started from the Home View. You access them through a "launching" Activity like Journal or Browse.

Reading epub files

Epub is an electronic book or ebook format that you can read on your computer after downloading and installing a reader such as FBReader, and downloading and storing the epub files that you want to read. To complete this procedure, FBReader must be installed.

Installing FBReader

To install FBReader, connect to the Internet; open the Terminal Activity and type:

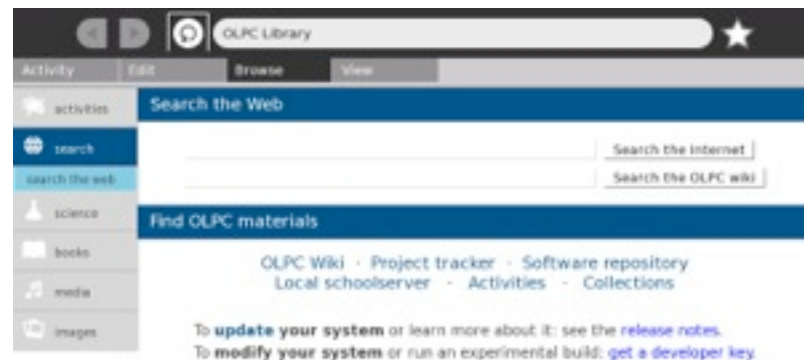
```
su yum install fbreader
```

After you press enter, the installer downloads and installs fbreader. Next, you'll want to download some epub books.

Downloading and Viewing books

To download and view epub books, follow this procedure:

1. Start the Browse Activity.



2. In the address bar type in *http://www.snee.com/epubkidsbooks* and press enter.
3. Scroll down to the book you want to download, and click the link. Sugar displays a countdown while the file downloads.



4. Switch over to the Journal Activity by clicking the Journal icon at the top of the Frame.
5. Insert an SD card or a USB device into the computer or laptop. The Journal shows an icon in a bottom bar when you insert external storage media.
6. Locate the downloaded epub file, but do not click it to launch it. Drag the file to the SD or USB icon in the bottom bar.



7. Start the Terminal Activity.
8. Click in the Terminal window and find the name of the external storage device, which is in the /media directory. For example, type:

df

- You will see the name of your SD card or USB device in the row with /media/ before it. You need that name to copy the epub file from the external media to the correct location for FBReader to find the book file.



```
[elipc@wo-8D-6E-E1 ~]$ df
Filesystem      1K-blocks      Used Available Use% Mounted on
mtd0             1048576    344808    703768   33% /
tmpfs            35676         0     35676    0% /dev/shm
/dev/mmcblk0p1  30352         3840     26512   13% /media/5962-0A04
[elipc@wo-8D-6E-E1 ~]$ cd /media/5962-0A04
[elipc@wo-8D-6E-E1 5962-0A04]$ ls
browsedownload.png
browse.png
File TheThreeBears.epub downloaded from http__www.snee.com_ebooks_TheThreeBears.epub..zip
journal_files.png
LittleBoPeep.epub
Screenshot 1 2 3 4 5 6 7 8.png
Screenshot 1 2 3 4 5 6 7.png
Screenshot 1 2 3 4 5.png
Screenshot 1 2.png
sdcard2.png
sdcard.png
snee.com.png
[elipc@wo-8D-6E-E1 5962-0A04]$ mv "File TheThreeBears.epub downloaded from www.snee.com_ebooks_TheThreeBears.epub..zip"
TheThreeBears.epub
```

- Change to the media directory where the epub file is stored and rename the file to something shorter. For example, type:

```
cd /media/USBMEM mv "File TheThreeBears.epub downloaded
from_http__www.snee.com_ebooks_TheThreeBears.epub..zip"
TheThreeBears.epub LittleBoPeep-ANurseryRhymePictureBook.epub
```

- Copy the newly named file to the ~Books directory. For example, type:

```
cp TheThreeBears.epub ~/Books
```

- Launch FBReader by typing FBReader at the Terminal Activity prompt. The screen displays the book you downloaded with FBReader's toolbar at the top of the screen.



Ideas for Expansion in the Classroom

Create

Make your own ebook by either creating a PDF file using a free PDF creator online or by learning about the epub's format to make your own book.

Ask students to learn about reading by reading more and more books and charting the class's progress in completed books read over a period of time.

Collaborate

Share your favorite books by copying files onto other student's SD cards or USB drives.

Have students write an email or letter to the author of their favorite books, asking them interview-style questions about working with others while authoring books.

Adapt

Who else might like to read the books you've downloaded? Can you find books that your family might enjoy together? What about books about your area of the country?

Extend

Use the Write Activity to keep a journal while reading your book. What discussion questions do you have for your class after reading the book?

Look the book up online at Amazon.com and read reviews for the book. Do you have the same reactions to the book as another reviewer?

Explore

How do students use reading in their every day lives to make decisions or otherwise act upon what they've read?

Reflect

Write a review to convince others to read a certain book. What aspects of the book can you use to convince someone that it is worth the time investment to read it?

Demonstrate Turtle Art

Turtle Art is a colorful visual activity to use in a classroom setting where students can give the turtle commands and even spell out their names.



Activity (step by step)

You may want to demonstrate on a computer that can be displayed on an overhead projector.

1. Open the Turtle Art Activity.



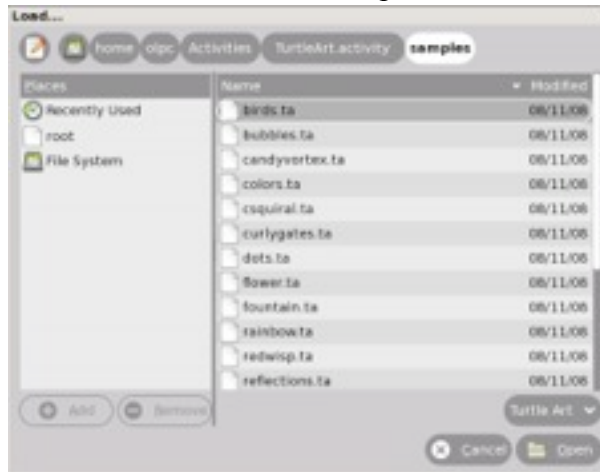
2. Click Project.



3. Click the Samples icon.



4. Select a sample file such as **birds.ta** and click Open.

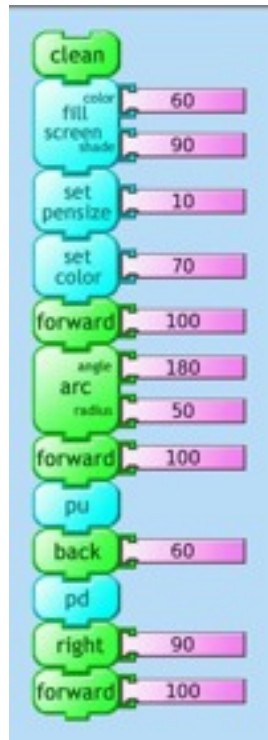


Create

Have students follow the instructions for creating letters. What shape will this set of commands make? Try it and see.

1. Drag each puzzle piece onto the turtle's floor.
2. Next, click the bar next to the piece, then type numbers to enter the number values you see, such as color and shade.

3. Once all the pieces are locked together, click the first puzzle piece to start your turtle.



Did your turtle draw this shape?



If your turtle didn't draw the shape of an uppercase A, or if the color is different, check each puzzle piece one at a time, pretending that you are the turtle trying to understand the command you gave it. When you see a number or a piece that is out of place, change it, and try again.

Collaborate

Have students share their letter drawings and use combinations for their names to work together in the classroom, such as having kids with N in their name share their turtle's commands by sending .ta files to each other.

Adapt

How can the turtle commands be adapted for giving someone directions to a nearby store? Would you tell a person to pick up a pen and set it down? How about telling a person how many

degrees to turn? Try to tell another classmate how to walk in a curved line by using the turtle commands.

Extend

Could your turtle draw plans for a house or for a path through a maze?

Explore

What's going on underneath the surface of the Turtle Art Activity is putting together a set of commands in a program, much like how computers take instructions and give results. Explore the idea of giving commands to something other than a turtle, such as a computer.

Reflect

Your Turtle's commands are stored in the Journal for you to review from time to time. Store the commands that make up your name.

9. Troubleshooting Guide

Getting Started

Where do I get support?

Sugar Labs has support communities that can help you. They have written documentation such as this manual. They also offer live chat support, interactive web forums, and regional user groups. Please refer to <http://wiki.sugarlabs.org> for further information.

How do I access a GNU/Linux command prompt?

Please refer to the chapter on the Terminal Activity.

What does "Register" (in the Home View hover menu) do?

"Register" is for children that are connecting to School Server. It serves no function outside of that context.

Why is there no windowing system?

The Sugar user interface sits on top of the X Window System. Sugar uses a zoom metaphor instead of an overlapping windows metaphor so the presence of the windowing system is less apparent.

How do I learn the Sugar Environment?

Sugar differs from traditional PCs and Macs. We hope you not only "learn by doing", but also seek others to collaborate with you in the learning process. You can find an in-person local user group by searching online, or find an online community to help you learn.

How do I change my nickname? my XO's colors?

You can change your nickname and colors from the Sugar Control Panel found on the hover menu on the Home View when viewing the ring view.

How do I set the date and time on my laptop?

You can set the date and time as follows:

1. Connect to the Internet.
2. Start the Terminal Activity.
3. Start a "root" process by typing:

su -l

4. At the command prompt, enter the following commands:

```
/usr/sbin/ntpdate time.nist.gov  
/usr/sbin/hwclock--systohc
```

5. In response to the ntpdate command, if it successfully contacts this US government official time server, the system outputs a line displaying the correct date and time.

How do I set the time zone on my laptop?

You can set the time zone using the Sugar Control Panel.

What are the functions of all the keys on the keyboard?

F1	Neighborhood View
F2	Group view
F3	Home View
F4	Activity View
Shift-Alt-F	Toggle Frame visibility
Alt-Tab	cycles forward through running Activities
Shift-Alt-Tab	cycles backward through running Activities
Ctrl-Tilde	cycles forward through running instances of the current Activity
Shift-Ctrl-Tilde	cycles backward through running instances of the current Activity
Ctrl-c	Copy to clipboard
Ctrl-v	Paste from clipboard
Ctrl-x	Cut (and copy to clipboard)
Ctrl-a	Select all (current input/dialog/text box)
Ctrl-q	Quit Activity
Ctrl-Esc	Quit Activity
Alt-Enter	Toggle full-screen mode
Alt-Space	Toggle tray visibility
Ctrl-u	View source in Browse Activity (opens copy of source in Write Activity)
Fn-Space	View source (system wide, although not enabled in all applications yet)
Ctrl-Alt-Erase	Restart Sugar
Alt-1	Screen capture; saved to Journal as a PNG file named "Screenshot"
Ctrl-Alt-F1	Open Console 1
Ctrl-Alt-F2	Open Console 2
Ctrl-Alt-F3	Open X Windows

How can I access the Internet?

Our *Connectivity Quick Start Guide* answers most questions about Internet Connectivity.

What if I cannot get online?

Do you have wireless Internet/WiFi nearby?

Is your WiFi access point locked? If yes, you must have the password in order to connect.

Have you connected to your WiFi access point?

You can go to the Neighborhood View and click the circle that represents your WiFi access point. The name of an access point appears when you hover over a circle. After you click the circle, its center should blink. When you are connected, the center blinking stops and a circle icon for the connection appears in Frame bottom right. If your access point is locked, you are prompted to insert a key. Select the proper key format for your access point from the pull-down menu. You can confirm that you are connected by hovering over the network status circle in the Home View. Please see the chapter on Connecting.

How do I disable wireless when flying?

To disable wireless when flying, refer to the Network panel in the Sugar Control Panel and clear the Radio checkbox under Wireless.

What is a mesh network?

A mesh network allows nearby laptops to talk to one another directly (wirelessly) without the need for a traditional Internet Service Provider (ISP).

Is there an email program?

There is not a native email client for Sugar. You can use the Gmail Activity to access your email, if you have a @gmail.com account; or you can simply use Browse to access most web-based email programs.

Can I install other software, such as Flash, Java, AIM, MSN Messenger, or Skype?

Please refer to the chapter on Installing GNU/Linux applications.
File Access

How do I save my work?

Your work is automatically saved in the Journal.

How do I delete a file?

Go to the Journal, which you can access from the Frame. Click the notebook icon to open the Journal. Find the file to be deleted by scrolling up and down the list. Open the detail view for the entry by clicking the name of the file. From within the detail view, press the "minus" button at the top of the screen to delete the entry.

Activities

How do I close an Activity (program)?

Most Activities have an "Activity" tab with a close button found at the top-right of the display; select the Activity tab and click the close button to close the Activity. For most Activities, the keyboard shortcuts **ctrl + q** or **ctrl + esc** can also close the Activity. Alternatively, on the Frame, hover the pointer over the Activity icon to bring up a menu; click "Stop" to end the Activity.

How do I download and run Activities (programs)?

There are many Activities the community has developed for download. From the Browser Activity on your laptop, go to Activities and click an .xo file you find there. This downloads and installs the Activity to your laptop. When it is finished installing, click **OK**. Press the Home key (fifth key from the upper left) to see the Home View. Click the List View icon in the upper right of the Home View to see all the Activities. Scroll the list down if necessary until you see the icon for the Activity you just installed. Click the Activity's icon to start it.

All Activities on the laptop have been developed in the open-source community by volunteers.

How do I use a camera?

A camera can be used with the Record Activity.

How do I take a screenshot?

Press **alt + 1** (hit the **1** key while holding down the **alt** key at the same time). Go to the Journal. The screenshot should be the first item in the Journal. You can then copy the screenshot to the clipboard and open it with the Browse, Paint, or Etoys Activity, or drag it on to an inserted USB memory stick for transporting it to another computer. This quick screenshot hack also makes it easier to capture and upload multiple screenshots to a web server.

Read: How do I read PDF files?

Click on a PDF file to automatically launch the Read Activity, either through the web browser (Browse Activity) or from a USB storage device (Journal Activity).

Browse: How do I bookmark a website and browse it later?

Click the star in the upper-right corner to bookmark the website. The website is saved in the Journal Activity for future use.

Browse: How can I protect my children from objectionable content?

The best thing you can do to keep your children safe is to participate in their education. For example, explain to them the kinds of threats they may encounter online and appropriate behavior, don't give out personal information such as an address, phone number or other personally identifying information over the Internet.

There are possible third-party solutions, such as *<http://DansGuardian.org>* available.

Activity Development

How do I report a bug?

We are very interested in bug reports. To report bugs, please go to *<http://dev.sugarlabs.org/>*. Developers, please continue to file bugs in our tracking system.

We are also interested in your suggestions for enhancement to our system.

Thank you for your participation.

Glossary

Access point (AP)

A device that connects wireless devices together to form a network. Usually connects to a wired network and relays data between wireless devices and wired devices. Several APs can link together to form a larger network.

Active kill

A mechanism for remotely shutting down a laptop that has been reported stolen when the laptop connects to the Internet.

Activation

In order to use your laptop for the first time (or after a "reflash" of the operating system), it must be unlocked by an activation key.

Activity

An application that has an icon in the taskbar, for example, Write, Record, Browse; Activities engage you in taking a picture, reading a book, creating a page, annotating a page, animating a drawing, making sounds and music, measuring and sensing, sharing your favorites, inviting your friends, surfing on the web, and many, many other things. Has a **.xo** suffix

Activity view

A view used by the current Activity that is running on the laptop.

Build

A version of the operating system, designated by category and number; for example, Ship.2-656; Update.1-698; Joyride-1792.

Click

The action of positioning the pointer over an object such as a menu item or icon and then pressing and releasing a "mouse" button. To "left click", you click with the left-hand mouse button. To "right click", you click with the right-hand mouse button.

Content

The books, music, movies, photographs, drawings, and other objects that are created on the laptop or downloaded to the laptop. Stored in an **.xol** file.

Datastore

Component that manages the access to the data displayed in the Journal; these data are stored in individual files; an index that contains the metadata and speeds up searches.

Double click

Click two times in rapid succession. In many graphical user interfaces, double click is used as a different gesture than two separate single clicks. Sugar does not use double clicks.

Drag and drop

The combination of dragging an object and then dropping onto a region of the screen. To drag an object: (1) position the pointer over the object; (2) press and hold the mouse button; and (3) move the pointer without releasing the mouse button. To drop an object, release the mouse button. In Sugar, drag and drop is used to copy items from the clipboard into an Activity.

Email list

A collection of email addresses—an efficient way to send email to a group of people who share an interest.

Firmware, Wireless

The wireless firmware is software that controls the operation of the wireless radio. It is downloaded into the wireless radio by the operating system.

Firmware, System

The system firmware is made up of two parts: The EC and OFW. The first part is the software that runs the embedded controller (EC). The EC handles the processing of the keyboard, touchpad, game buttons, power button, and charging the battery. The second part is OpenFirmware (OFW). OFW is responsible for initializing the hardware and booting the operating system. OFW also handles boot security so that it will only load "official" OLPC operating systems.

Frame

The Frame, which can appear in any view, holds system status (battery, speaker, and network), a clipboard, the list of open Activities, navigation controls, and list of "buddies" (collaborators).

Group view

A view of your friends with whom you are working on shared projects.

Home view

View of installed Activities from which you launch them—the Home view is the starting view on the laptop.

Hover over

To move the pointer over something on the screen (such as an icon) and leave it there for a moment. Often, hovering over an object's icon activates a menu of options for that object.

Infrastructure mode

Network connectivity through a WiFi access point, for example, 802.11b.

Internet Relay Chat

IRC/chat is real-time text chat used by the development and technical support communities (and hopefully the learning community as well).

Jabber

A protocol that the laptop uses for collaboration.

Journal

Activity where you can see your previous work. You can also resume the work done at those Activities.

Jumpdrive

A small, external storage device that plugs into one of the USB ports on a computer. They can store between 16MB (enough to hold several music files) up to 4GB (enough to hold several high quality full-length movie files) and a wide range in between. Jump drives are easily purchased at any electronics store starting as low as \$5 to \$10.

Key generation

Process of generating both activation and developer keys.

Lease

When a laptop is activated, the activation has an expiration date. The period between activation and expiration is the lease period. The lease period is determined during the key-generation process; the laptop can be reactivated after the lease has expired.

Library

Content that is created on the laptop is accessed through the Journal; preloaded content is stored in a library and is accessed through the Browse Activity.

Malware

Malware is software designed to infiltrate or damage a computer system without the owner's informed consent. Linux is relatively robust in light of malware and Rainbow provides additional protections above and beyond the standard Linux defaults.

Memory stick

See: *Jumpdrive*

Mesh Channel

The laptops use three channels for communication: 1, 6, and 11; in simple mesh mode, the laptops can only see other laptops on the same channel; in a School Server mesh, laptops on all channels are visible.

Mesh Network

A wireless mesh network is a communications network made up of radio nodes in which nodes can forward information on behalf of each other so that even nodes that are not in direct radio contact can communicate via nodes that are between them. The collective coverage area of the radio nodes working as a single network becomes a mesh cloud.

Mesh Mode

Network connectivity through a mesh network, for example, 802.11.

Mesh Portal Point

A mesh node that serves as a gateway (portal) to a network external to the mesh.

Mouse button

Originally referring to a button on a computer mouse, the term is now used to refer to a button on any pointing device, such as a touchpad or pointing stick.

Neighborhood View

A view of who is on the network with you and what Activities and content are being shared.

Operating system

(OS) - The low-level system that manages the various files, processes, etc. needed to operate the laptop; the OS used by the XO laptop is the RedHat Fedora distribution of Linux.

Palette

A black box that appears when the mouse hovers over an object; a palette can contain the name of the control, some details about it or some related actions.

Passive kill

Currently unsupported, this is a mechanism that uses the lease mechanism to require laptops to periodically ask for a renewed activation. Without the renewal, the lease will expire and the laptop will be locked.

PO file

A file containing the instance of translated strings for a single language based upon a POT file.

Pootle

A server that is used to store and manage translation templates and files.

POT file

The master translation template for a project.

Power adapter

Each laptop comes with a power adapter to allow it to be plugged into a power socket.

Presence

A discovery service for finding other laptops on the network.

Rainbow

Rainbow implements the isolation shell implicitly described in the Bitfrost security specification. This means that it isolates Activities (and eventually system services) that it is asked to run from one another and the rest of the system.

Reflash

The process by which a fresh build is installed in the laptop; reflashing overwrites all files, including files in the *Journal*. And so, it should be done with caution.

Request Tracker (RT)

Web site: <http://rt.laptop.org/> This is a *Support* ticket tracking system.

Read: <http://bestpractical.com/rt/> for more information.

Resume

To return to a normal state of operation after suspending.

Rollover

See: *Hover over*

School server mesh mode

A mesh network that is mediated by a School Server.

SD card

Secure Digital (SD) is a flash (non-volatile) memory card format used in portable devices, including digital cameras, handheld computers, PDAs, and mobile phones. SD card capacities range from 8 MB to 32 GB.

Signed/unsigned builds

Signed builds are release builds that have undergone QA testing. Unsigned builds are development builds, which are used for testing new features and bug fixes. You cannot run an unsigned build in your laptop unless you have either a developer key or security has been turned off (as in the case of the G1G1 laptops).

Simple mesh mode

A mesh network that is running between laptops without a School Server.

Single click

Click one time. In many graphical user interfaces, multiple clicks are used as a different gesture than single clicks. Sugar does not use multiple clicks.

Sugar UI

The Sugar user interface. It consists of four views, the Frame, and the Journal.

Suspend

To cause a computer go into a standby state in order to save power.

Thumb drive

See: *Jumpdrive*

Toolbar

A user-interface element that can contain several buttons, text entry fields, drop-down menus, and other elements, that is usually contained in a toolbox; common examples of toolbars include: *Activity*, *View*, and *Edit*.

Toolbox

A user-interface element that appears in the top part of most Activities and contains one or more toolbars.

Tubes

A protocol for passing data between computers.

USB drive/USB stick/USB storage device

See: *Jumpdrive*

View

Instead of a desktop, Sugar maintains four views: *Neighborhood*, *Group* (Buddy), *Home*, and *Activity*.

Virus

A computer program that can copy itself and infect a computer without permission or knowledge of the user, a type of *malware*.

Wiki

A collaborative website that allows for community contributions and editing, for example, <http://wiki.laptop.org> and <http://wiki.sugarlabs.org>.

XO-1

A low-cost, power-efficient, durable laptop computer designed for education in developing countries by One Laptop per Child. The XO-1 features *mesh networking* and a dual-mode, low power, sunlight readable display.

XS school server

An *XS* or *school server* extends the amount of storage available to children. It also serves as a local library and a mesh portal to the Internet.