

# Making Grape Juice

## (ages 4 -5)

In wine-growing regions, this sequence can come after a tour of a vineyard during the grape-picking season, where the students will have seen a professional wine-pressing machine. In other regions, the sequence can build on reflections about the origin of consumer food products: potatoes, milk, pasta, juices, etc.

The sequence suggested is to be carried out in six sessions of varying duration. Session 4b involves several different steps. It can be broken up over time (introduction to technical guides, drawing phase, selection phase, coding phase).

Sequence Procedure			
Sessions	Activities	Activities	Learning Targeted
<b>Session 1.</b> <b>First Attempts at Making Grape Juice</b>	Producing grape juice by hand, then using objects in the immediate environment.	Designating (clusters, seeds, crush...) objects and actions.	<ul style="list-style-type: none"> <li>– Enjoying the act of transforming matter and the “perceptible pleasure” that comes with it</li> <li>– Choosing objects to perform a task (crushing the grapes).</li> <li>– Discussing the outcome achieved.</li> </ul>
<b>Session 2.</b> <b>With Other Objects</b>	Producing juice using a variety of objects usually used in cooking, with varying functions.	<ul style="list-style-type: none"> <li>– Exchanging to adjust a movement to an object.</li> <li>– Explaining choices taking into account the outcome.</li> </ul>	<ul style="list-style-type: none"> <li>– Finding the right movements to properly use technical objects.</li> <li>– Helping one another.</li> <li>– Becoming aware of specific hazards and the ability to protect oneself from them;</li> <li>Knowing how to take cautious action.</li> <li>– Trying, comparing and selecting objects according to their effectiveness.</li> <li>– Taking pleasure in becoming proficient in using a technical object.</li> </ul>
<b>Session 3.</b> <b>With a Grape Press</b>	<ul style="list-style-type: none"> <li>– Using a specialised technical object: the raisin press</li> <li>– Understanding its workings.</li> </ul>	<ul style="list-style-type: none"> <li>– Exchanging to learn how to put together the parts of a press.</li> <li>– Gaining specific vocabulary.</li> </ul>	<ul style="list-style-type: none"> <li>– Identifying parts and assembling them so they work.</li> <li>– Attempting, trying, concluding.</li> <li>– Identifying the technical functions of a press.</li> </ul>

<b>Session 4.</b> <b>Making a Grape Press</b>	Designing and producing a technical object from the materials provided.	<ul style="list-style-type: none"> <li>– Naming actions.</li> <li>– Substantiating choices in consideration for the result.</li> </ul>	Identifying functions and selecting the materials necessary for the press.
<b>Session 4b.</b> <b>Technical guides</b>	<ul style="list-style-type: none"> <li>– Discovering a type of document – the technical guides.</li> <li>– Producing technical guides.</li> </ul>	<ul style="list-style-type: none"> <li>– Learning about technical guides.</li> <li>– Naming the necessary components and steps.</li> </ul>	<ul style="list-style-type: none"> <li>– Selecting the information to be conveyed. Representing it symbolically.</li> <li>– Representing objects and actions.</li> <li>– Assigning oneself selection criteria for the creations.</li> <li>– Accepting responsibility sharing. .</li> </ul>
<b>Session 5.</b> <b>Making Apple Juice – Not So Easy...</b>	Redeploying know-how to attempt to make juice with another fruit – the apple.	<ul style="list-style-type: none"> <li>– Explaining ones choices before handling materials.</li> <li>– Expressing issues.</li> </ul>	Trying objects already found to be the most effective in a new setting and looking specifically at why the raisin press failed.
<b>Session 6.</b> <b>Looking for Answers</b>	Looking, trying: the children state hypotheses about the objects they see as most effective for completing the task. They test them and, if necessary, consider other items.	Referring to previous experience to take effective action.	<ul style="list-style-type: none"> <li>– Coming up with suppositions and testing them.</li> <li>– Concluding.</li> </ul>

### Implementation Conditions

This activity, conducted in a workshop setting with groups of seven to eight children, requires the presence of the teacher, who will have to plan on moving between the various groups. The times for sharing between the groups will, of course, make the sessions unfold differently and thus they will not be totally identical for all of the groups.

### Materials for a group of seven to eight children:

- clusters of grapes;
- paper plates;
- cooking items: lettuce drainer, lemon squeezer, garlic press, sauce strainer (a very simple device, with a crank, sold in hardware stores), french fry cutter, pestle, vegetable grinder, crank-operated grater, etc.;
- a household raisin press (possibly replaceable by citrus press). If no such objects are available, in Session 3, a video cassette about the functioning of the grape press can be shown;
- cottage cheese strainer, a variety of boxes (for camembert, cream cheese, aluminium, etc.), wood (a number of pieces, sticks, circles...);
- wood glue, hammer, wooden grater.

# Session 1. Hands-On.

## Objectives:

- To mobilise the children around the idea of making fruit juice.
- To create awareness, through a variety of trails, that “making grape juice” is feasible, but also that different choices can be made to be as effective as possible.

The aim is essentially to bring the project to life. The children will first take pleasure in crushing the grapes with their fingers, then, under the teacher’s guidance, look around the classroom environment for other objects likely to be effective in crushing.

## Materials:

- grape clusters, plates and classroom objects.

The children are provided with clusters of grapes and invited to make juice. After a moment of inhibition for some, they will take real pleasure in this.

Here, it is important that the children take action first. It is up to the teacher to gradually being the children to ask themselves questions: how can the juice be caught? Is the quality of the juice satisfactory?

The children begin by crushing the grapes with their fingers (figure 2). Very quickly, the question of where to keep the juice will arise – in a plate or another recipient?

The teacher will then invite them to use other objects in their immediate environment, for example, taking them from the kitchen area (pastry dough roller, measuring cup, etc.). He must accept that the children will use some of the objects in ways not originally intended. The action phase is generally a great success with the children, thanks to the “perceptible pleasure” that comes with transforming matter. It will be up to the teacher to take the experiment farther and have the children compare the observed outcome with the desired result, to stir reactions like Nicolas’: “With the measuring cup, we mixed everything up, the seeds, the juice and the skin” (figure 3).



Figure 2. Crushing the grapes by hand.

*"We tried to crush the grapes one by one with our fingers to make grape juice."*

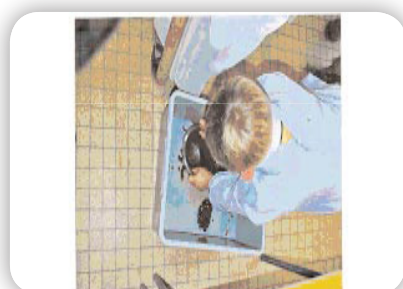


Figure 3. Crushing with a measuring cup

*I tried to push down on the cluster with the measuring cup to make grape juice. (Nicolas).*



## Session 2. With Kitchen Items

### Objectives:

- To use a variety of objects and identify, for each one, the gesture best suited to its use. This process will involve a great deal of trial, imitation and error. When the children come upon stumbling blocks, the teacher will make them realise where the problems lie (where should they push? Which direction does the crank need to be turned? Where should the grapes be put? Etc.) and encourage the students to help one another to progress. By comparing their intentions with what actually happens and solving a number of problems, the children will have the pleasure of mastering the functioning of a technical object.
- To select objects for their ability to produce juice of sufficient quality and quantity. The objects' effectiveness will not be sought out naturally; it is a factor that the teacher will have to bring out.

### Materials:

grapes, plates, lettuce drainer, lemon squeezer, garlic press, sauce strainer, french fry cutter, pestle, vegetable grinder, crank-operated grater.

First of all, the children use the objects. They work toward developing the most appropriate gestures through trial and error. They are often tempted to use the object that works well in a classmate's hands. However, in their own hands, the same object can turn out more difficult to use than they suspected. Mutual aid between the children begin at this point; it is up to the teacher to trigger it, if necessary.

Some objects can be hazardous if not used carefully. By making the children aware of the risks involved, the teacher will also teach them about safety.

The action phase will be followed by a thinking period, in order to select the objects most effective in producing grape juice. The teacher will invite the children to observe the outcome and compare it with what was expected. They will have to reason to make the selection.

With the pestle, "everything ends up mixed up: the fruit, seeds, juice and skin". With the french-fry cutter, "all you get in the plate is juice, but not much". With the lemon press and salad drainer, "nothing happens". With the garlic press, "all you get in the place is juice, but you can only put in one grape at a time". With the grinder, "you can put the whole cluster in, and you end up with everything mixed together – the fruit, seeds, skin and juice". With the sauce strainer, "you can put the whole cluster in, and all you get in the plate is juice".

Following discussion, the sauce strainer is deemed the winner of the "Most Effective" prize. This type of activity also brings in the parents, as they can lend even more effective objects, like a small grape press.



Figure 4. With a pestle or french-fry cutter.



## Session 3. With a Raisin Press

### Objective:

to introduce the functioning of an object intended specifically for the task to be completed (producing grape juice)

### Materials:

a household press (the families can be called upon to contribute)2.

The dis-assembled press is shown to the children. It will be up to them to assemble the parts so that they work. The teacher will guide the process using works to enhance the children's vocabulary. The device's technical superiority (speed, quantity, quality) over the other objects will quickly be realised.



Figure 5. Using the press.

*Let's crush raisins with a press. First, we put together the press. Then we put the grapes inside. Then we put the crank on and turned it. It pressed against the plate. The plate dropped down to crush the grape. The grape juice dripped through the whole and, afterwards, it was in the can.*

## Session 4. Making a Press

### First Design, Then Produce

#### Objectives:

to identify the functions of the object to be produced and look for the materials likely to fulfil those requirements.

#### Materials:

a variety of boxes (camembert, cream cheese, aluminium, etc.), cottage cheese strainer, wooden circles, sticks, various pieces of wood, wood glue, hammer.

This step requires anticipation, unlike the previous, where action preceded thought. Here, the functions to be performed (crushing and filtering) will need to be identified before the object is produced. The object will be produced by trial and error, as far as selecting the objects and trying to make a pestle (for crushing) and a filtering box that can catch the juice. The teacher's role will be fundamental there too, helping the children explain their



actions, identify problems and look for solutions.

This process can take place with only part of the class, which will present the findings of its inquiry to the group before designing the object (during the next session).

faut : coller un bâton sur un rond en bois.  
une boîte percée  
boîte en bois



Figure 6. Press made by the children.

## Producing a Technical Guide

Motivation for this activity shall come from the need to convey know-how, for instance to the parents.

Before embarking on the session itself, it is best that the students be made familiar with “technical guide” as a document form. This will make it possible for them to produce, as a group, the technical guide to the press produced based on the children’s graphical portrayals:

- review of the actions to be portrayed (“you put the grapes in the punctured box, you put the box in the big box, and you press with the pestle you made”);
- the jobs is shared: the work is divided up between three groups, each with the opportunity to choose one of three actions to depict. Each child in the group produces a drawing. For each drawing, the instructor posts the children’s drawings. They are commented upon, debated over and a selection is made, explaining why those drawings were chosen as essential representations to illustrate the action (figure 7);
- from this point, a common code can be developed for producing the technical guide (the teacher may suggest codes if the children are not successful in doing so – figure 8).



Figure 7. Stages shown by the children.

## Session 5. Making Apple Juice

### Objectives:

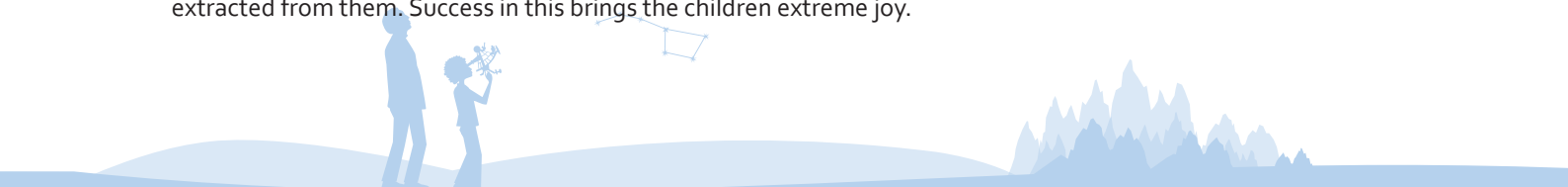
re-deploying know-how and analysing a situation to provide a solution to a problem.

### Materials:

apples, the press and the objects from Session (If no press is available, a video or book showing the object may be used. ).

The children, asked to produce juice from another fruit, are of course tempted to use the device that was most effective for making grape juice. Unfortunately, the press refuses! (Figure 9)

The failure leads to a brainstorming session: the apples are too big and need to first be grated before juice can be extracted from them. Success in this brings the children extreme joy.





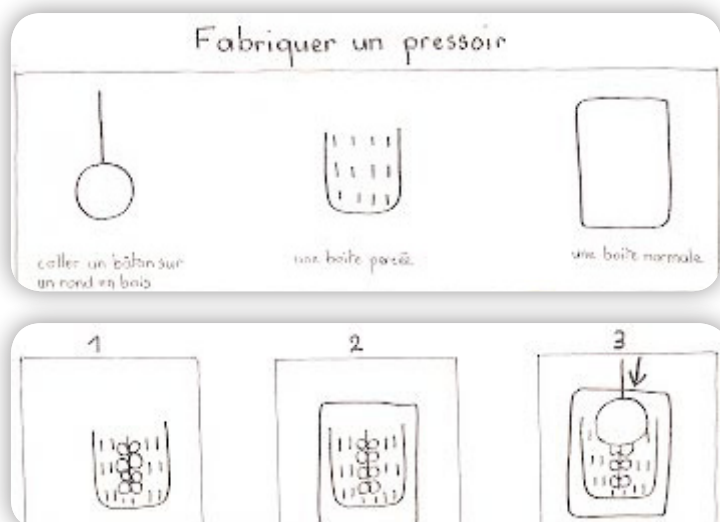


Figure 8. Technical guide to making a press.

Making a press. Glue a stick to a wooden circle. A punctured box. A normal box.



Figure 9. Making apple juice. Kevin put the apples into the press. Afterwards, he put on the plate and the crank. He turned the crank, the plate went down. We didn't make any apple juice.

Kevin a mis les pommes dans le pressoir.  
après, il a mis la plaque, la manivelle.  
il a tourné la manivelle, la plaque a descendu  
on n'a pas réussi à faire du jus de pomme

