

Example lesson

How to teach using org-mode
for fun and profit

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Introduction

This is a demo document about the [codename.org-teaching](#) framework, which aims at managing teaching material using Org-mode.

This is a HTML slides deck

- You're viewing a *reveal.js* Web slides deck. You may press 's' to view presenter notes.

Org-mode powa

Attention, this framework heavily relies on:

- [org-mode](#) (version 9 at the time of writing)
- and the [org-reveal](#) exporter for `reveal.js`.

About this slides deck

These slides are one variant of the same teaching material, also available [as a PDF handbook](#).

You may prefer to view them in your Web browser in full-screen (F11 for instance). Should `Reveal-JS` fail on displaying slides, an alternate format would be the [printed PDF](#) (but you're gonna lose the ability to display speaker notes).

Features

Writing teaching material in org-mode

The goal is to be able to edit a single file (namely `lesson.org`) which will contain, in a **single source**, all the content of a lesson, written with org-mode syntax.

From this single source, several documents are generated :

- **slides** (as a dynamic Web document) for overhead presentation
- a **handbook** that contains the same information (or more) and can be handed to the students for work outside the classroom (a **PDF file**)

- optionally, another version of the **handbook** for the teaching team, to provide additional instructions (also a [PDF file](#))

Frugal org-reveal/reveal.js slides

Pretty much all features of `reveal.js`, supported by the org-mode reveal.js exporter ([org-reveal](#)), should be supported too.

If you're already familiar with reveal.js, you may have noticed that the current settings adopted for our slides generation are quite frugal: no fancy 3D effects and likes.

Structure of the sections / slides

I'm using the 3 levels of outlining / sectioning so that the content can be sectioned in the same way in `lesson.org` and appear appropriately in the slides and handbook, with these principles:

Presenter notes / content for the handbook

`org-reveal's Speaker notes` may be added to the slides (and will only appear on dual-screen presentation after having pressed 's': standard reveal.js feature).

They will be masked for the audience, but will, by default, appear in the handbook given to the students.

The syntax in the org-mode source is:

```
#+BEGIN_NOTES  
This is a note  
#+END_NOTES
```

Masking content for some audiences

I've implemented some "easy ways" to preserve some of the content of the same `lesson.org` source for certain outputs (using org exporter's standard `EXCLUDE_TAGS`):

Slides only material

that won't be embedded in the handbook : surprise stuff for live audience, or HTML-only hacks;

Teachers only material

secret knowledge that only adults need to know (for instance), which won't be exported;

Handbook only material

stuff that only fits in the handbook, and/or only exports as LaTeX and not HTML.

Stuff only meant for presentation

Tagging a section/slide with `.:slidesonly:.` means it isn't exported in the handbooks.

Below is an example (or not)...

Regular slide (no tag on heading line)

There should be no "Only in the slides" after this section, in the handbooks, as it has been tagged with `slidesonly`.

Only in the slides

On the contrary, in the slides view, this appears, as there's a `::slidesonly::` tag on the current head line.

Stuff only meant for teachers

Tagging a section/slide with `.....:teachersonly:.....` means it isn't exported in the students handbook (nor in the slides).

Below is an example...

Regular slide (no tag on heading line)

There should be no "Only for teachers" after this section, in the slides or in the students handbook, as it has been tagged with `.....teachersonly.`

Notes only for the teachers

This slide/section contains notes, but only part of it is displayed in the presentation notes included in the handbook. Special notes and are kept only for the teachers handbook.

We use an org-mode drawer for that (additional benefit is that the content is folded by default in emacs, as it may be verbose and/or "sensitive") :

```
#+BEGIN_NOTES
```

```
This part of the note can be viewed by the students in the handbook.
```

```
:TEACHERONLY:
```

```
Not this one
```

```
:END:
```

```
#+END_NOTES
```

Stuff only in the handbooks

Just like sections are for slides only, others can be for the handbook only, using the `.....only` tag. This may be useful for **Annex** sections for instance, or for stuff that the HTML exporter won't like, with inline LaTeX.

Code colorization

Code is colored / highlighted in the slides :-)

Misc org-mode

Babel power

As you're using org-mode, its `babel` components are available, to embed source code in the same `lesson.org` source, and manage executable code and teaching material at once.

Look for *literate programming* instructions in the [org-mode docs](#) to know more.

Jumping to slide number

Included is the use of the [reveal.js jump plugin](#) to allow jumping directly to slides # by entering a number and hitting RETURN. Quite handy while writing and testing slides.

Missing features ?

Please try and talk to me to suggest new stuff and/or
provide patches ;)

Authoring

Modify only the lesson.org

Only one file should be edited for writing the lesson's material : lesson.org

Only exception is modification of some configurations for title pages and other bits that shouldn't change much in time (see section [Configuration of layout](#)).

Use Emacs org-mode exporters or the Docker container

You have 2 options to generate the different formats:

- either manually use the standard org-mode exporters from inside Emacs
- or use the Docker container for automation / reproducibility

Manual export for final documents

We're using the standard exporters so each output format will be exported from its corresponding umbrella umbrella.org source.

Open the corresponding org-mode source and export :

slides

open `slides.org`, then `C-c C-e R` for
`org-reveal` export (to `slides.html`), provided
that you have loaded `org-reveal` in Emacs

handbook

open `handbook.org`, then `C-c C-e 1` for
LaTeX export (to `handbook.pdf`)

teacher handbook

open `teacher-handbook.org`, then `C-c C-e`
`1` for LaTeX export (to `teacher-`
`handbook.pdf`)

Exporting slides to HTML with org-reveal

Depending on how you installed org-reveal ([Git submodules](#) or otherwise), `org-reveal` may already be available.

If not yet, load it with `M-x load-file` from the location of its Git submodule (`elisp/org-reveal/ox-reveal.el` by default).

Use the docker container exporter

You may use the `olberger/docker-org-export` docker container image I've prepared, to make org-mode exports. Or you may rebuild it yourself (see below).

Build the Docker container image

This is recommended to avoid man in the middle,
IMHO:

```
cd docker  
docker build -t obergixlocal/docker-org-export .
```

Run the container

Use the provided `docker/docker-org-export` script, which relies on the `olberger/docker-org-export` container image. See how **Makefile** does it.

Configuration of layout

Each `lesson.org` needs some configuration :

- Configure `org-reveal-title-slide` in `slides.org`.
- Configure in the headers elements like:
 - *header* (`\lhead{...}` and `\rhead{...}`)
 - and *footer* (`\lfoot{...}` and `\rfoot{...}`)

ex: `#+LaTeX_HEADER: \rhead{...}` in `handbook.org` and `teacher-handbook.org`.

Printing slides

I've tested **DeckTape** using a Docker container containing `PhantomJS` and `decktape` to convert the slides to a **single PDF document**.

See the provided **decktape.sh** script that runs the container, bind-mounting the working dir into the container, so that input and output files can be found.

Note that I used a rebuilt Docker image, reusing the **DeckTape Dockerfile**, rebuilding with something alongside:

```
docker build -t obergixlocal/decktape .
```

Known Issues

Firefox issues ?

We have experienced issues with presentations made on some versions of Firefox, which are known by reveal.js maintainer... maybe best viewed in chrome.

You may prefer to have a PDF variant of the slides (see [Printing slides](#)) in case.

How it works / Installation

Use the source (Luke)

See the contents of the files... but be wary that it's sometimes messy and incrementally obtained.

Emacs is your buddy.

Git clone from

`https://gitlab.com/olberger/org-teaching.git` (see the [Gitlab project](#))

Git submodules

The repository contains Git submodules for :

- `reveal.js/`
- `elisp/org-reveal`
- **reveal.js's jump plugin** (`reveal.js-jump-plugin/`)

So :

```
git submodule init
git submodule update
```

You may prefer to install them another way (ELPA repo, CDN, etc.)

Customize slides appearance

Reveal.js settings

See the org-reveal settings set in the sources and the docs for a detailed explanation.

I'm using the following for a "frugal" look close to what powerpoint or beamer (?) could look like :

```
#+REVEAL_HLEVEL: 2
#+REVEAL_THEME: simple
#+REVEAL_TRANS: fade
#+REVEAL_SPEED: fast
#+REVEAL_MARGIN: 0.0
#+REVEAL_EXTRA_CSS: ./presentation.css
#+REVEAL_ROOT: ./reveal.js

#+OPTIONS: reveal_center:nil
```

Section separators

The highest level sections include the following properties below the heading line, to customize the look of the slide.

```
:PROPERTIES:  
:REVEAL_EXTRA_ATTR: class="center"  
:reveal_background: #dbdbed  
:END:
```

This is intended to provide some visual sense of the transitions between sections. Please adapt and report.

Title screen picture (logos, etc.)

I'm not yet sure how much may be achieved with HTML and CSS for the title page of the slides deck, so I've relied on the embedding of a background image that will contain the logos and additional graphics.

```
#+REVEAL_TITLE_SLIDE_BACKGROUND: ./media/title-slide-background.png
```

I'm quite sure this could be improved.

Annex

Thanks

- All contributors to org-mode (special kudos to Carsten Dominik and Bastien Guerry)
- Yujie Wen for `org-reveal`
- Hakim El Hattab for `reveal.js`
- My colleagues at Telecom SudParis who had to teach with this tool without much rehearsal
- Our students who endured it for a brand new course (and included bugs)
- Alexey Lebedeff for his [docker-org-export](#) Docker container

Feedback

I may be contacted from [my Web page](#) or via [the Gitlab project](#).