

# Science4Fun Erasmus+

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## Science4Fun – Handbook

Version 1.1

# S4F Handbook

<b>Science4Fun Erasmus+</b> .....	1
1. Scope .....	2
2. Technical platform implementation.....	2
2.1. Moodle platform.....	2
2.1.1. Basic Requirements .....	2
2.1.2. Moodle Installation and Configuration.....	3
2.2. S4F Plugins .....	12
2.2.1. Installation and configuration .....	12
2.2.2. Upgrade .....	27
3. Moodle Structure for S4F Tests.....	29
3.1. Question Bank Structure.....	29
3.2. Groups (Courses) and Tests (Quizzes).....	32
3.3. Science4Fun Reports.....	36
4. Administration.....	39
4.1. Web Admin interface.....	39
4.1.1. Countries .....	39
4.1.2. Organisations.....	40
4.1.3. Teachers .....	41
4.1.4. Groups .....	42
4.1.5. Tests .....	42
4.1.6. Students.....	43
4.1.7. Users.....	44
4.1.8. Activity summary.....	45
4.2. Backoffice administration .....	46
4.2.1. Test deployment flow.....	46
4.2.2. Load Template – General Provisioning.....	53
5. Current status.....	62
5.1. Versions .....	62
5.2. Current restrictions.....	62

## 1. Scope

This document provides a guide for the technical aspects of S4F system, and it is intended to allow administrators to implement a local instance of the system and to give support to final users.

Science4Fun system is implemented as an extension to Moodle LMS platform. Currently the project has set-up a single central Moodle node for project activity at:

<http://learning.science4fun.eu>

Information presented here is related to current version of S4F system as it is detailed in section "Error! Reference source not found. Error! Reference source not found.". This document will be updated for future changes in system implementation.

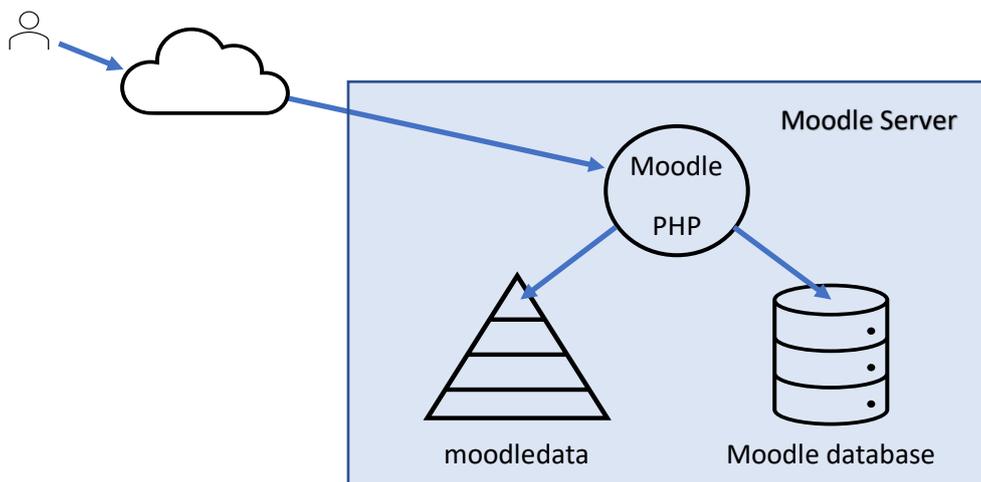
## 2. Technical platform implementation

### 2.1. Moodle platform

Moodle is an Open LMS system developed in Linux using Apache with PHP support as webserver and PostgreSQL, MySQL or MariaDB as database server. This combination is one of the standards for Web hosting and uses to be known as the LAMP environment. It uses to be also the structure on which Moodle installation is run but it is not the only option.

In summary, a Moodle installation has three main elements:

- Moodle Web folder – It holds Moodle application itself. It is a PHP application.
- Moodle database – Moodle uses a single database where it stores every logical information in the system.
- **moodledata** data folder – It is a disk folder in your server, accessible by the application but not accessible through the web server by external users. It stores mainly content files of different types but also temporal files and internal cache data.



#### 2.1.1. Basic Requirements

You need a server or webhosting environment. The following can be a good sizing guide for a S4F Moodle installation, of course it always will depend on the number of tests and the level of traffic.

- A single server shared or dedicated can be enough for this application.
- Disk space: 1GB for the Moodle code, plus up to 20GB for moodledata and database.
- Processor: 1GHz (min), 2GHz dual core or more recommended.

- Memory: 1GB or more is recommended.

#### About software requirements:

- Any standard Web server supporting PHP is supported. We recommend and use Apache for Linux servers.
- PHP 7.0.0 up to 7.3.0. It depends on Moodle version; requirements presented here are for the case of S4F, which is tested for Moodle 3.6.
- PHP extension **intl** is required.

For Database server we have the following requirements (taken from Moodle 3.6 Release Notes and requirements):

Database	Minimum version	Recommended
PostgreSQL	9.4	11.x - note that 12.x is not yet supported
MySQL	5.6	Latest
MariaDB	5.5.31	Latest
Microsoft SQL Server	2008	Latest
Oracle Database	11.2	Latest

For database administration it is also recommended to have some easy-to-use database admin tool that allows at least to run simple SQL queries on Moodle database. We recommend and use phpMyAdmin (<https://www.phpmyadmin.net/>) for MySQL.

#### 2.1.2. Moodle Installation and Configuration

1. First step is to review you have your server or web hosting environment available and matching requirements summarized in the previous section.
2. Download and copy Moodle in place:

You can download Moodle 3.6.10 from

<https://download.moodle.org/download.php/stable36/moodle-3.6.10.zip>

Where to get Moodle software versions:

- Main Moodle download site is:  
<https://download.moodle.org/>
- Latest Release is at:  
<https://download.moodle.org/releases/latest/>
- Version currently supported for S4F extensions and other 'old' versions can be found at:  
<https://download.moodle.org/releases/legacy/>

Copy this ZIP file to your server and extract it to your web space document root folder. It will give you a directory named **moodle**, in which case the site will be located at <http://yourwebserver.com/moodle>; alternatively, you can copy **all the contents** of **moodle** folder straight into the document root, in which case the site will be simply <http://yourwebserver.com>. Also, you could change (if you are allowed to) the configuration of

your web server, changing the document root to the extracted **moodle** folder. See the documentation for your system and/or web server if you are unsure.

### 3. Launching the installation process via Web:

The basic information you need to prepare in advance to launch the installation is:

- *Site domain (URL)*
- *Database server: IP/URL + port*

*In a typical simple installation, it can just be **localhost** with the default port*

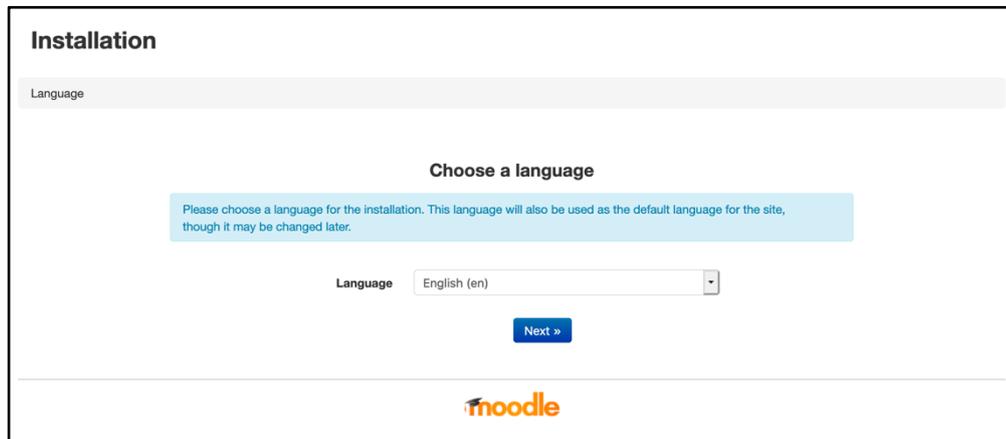
- *An empty database: database name, database user and password*

*Database User needs full privileges on Moodle database. You need to create these elements on your selected Database Server. Maybe you'll wish require support from your administrator or Hosting provider*

- *Route to **moodledata** folder: a file directory on your server.*

*The directory needs to have read/write permissions for the Web server user, but it should not be 'served' by your Web server.*

- Using your Browser, navigate to your Moodle main web address. It will start the web install process. First step is to select the main default language for your installation:



The screenshot shows the Moodle installation 'Language' selection screen. At the top, it says 'Installation' and 'Language'. The main heading is 'Choose a language'. Below this is a light blue box with the text: 'Please choose a language for the installation. This language will also be used as the default language for the site, though it may be changed later.' Underneath, there is a 'Language' label followed by a dropdown menu currently set to 'English (en)'. A blue 'Next >>' button is positioned below the dropdown. At the bottom center, the Moodle logo is displayed.

- Next, you will be required to enter installation Moodle data directory. Web address and web Moodle folder will be just shown as far as you are already accessing this web server. You should check the comments shown about accessibility and readability.

The screenshot shows the 'Installation' screen for Moodle, specifically the 'Confirm paths' step. The page has a header 'Installation' and a sub-header 'Paths'. The main content area is titled 'Confirm paths' and contains three sections: 'Web address', 'Moodle directory', and 'Data directory'. Each section provides instructions and a text input field. The 'Web address' field contains 'http://yourwebserver.com/moodle'. The 'Moodle directory' field contains '<your path to Moodle Web folder> ...../htdocs/moodle'. The 'Data directory' field contains '<your path to Moodle Data folder> ...../moodledata'. At the bottom of the form are two buttons: '<< Previous' and 'Next >>'. The Moodle logo is visible at the bottom of the page.

- Next Step you can select the database driver. In the example we will use a MySQL server so we select the default driver for that.

The screenshot shows the 'Installation' screen for Moodle, specifically the 'Choose database driver' step. The page has a header 'Installation' and a sub-header 'Database'. The main content area is titled 'Choose database driver' and contains a blue box with text: 'Moodle supports several types of database servers. Please contact server administrator if you do not know which type to use.' Below this is a 'Type' dropdown menu with 'Improved MySQL (native/mysql)' selected. At the bottom of the form are two buttons: '<< Previous' and 'Next >>'. The Moodle logo is visible at the bottom of the page.

- Now the process will require to enter the information about the database connection you should have already prepared.

The screenshot shows the 'Installation' screen for Moodle, specifically the 'Database settings' step. At the top, there is a 'Database' tab. Below it, the title 'Database settings' is centered. A light blue box contains the following text: 'Improved MySQL (native/mysqli)', 'The database is where most of the Moodle settings and data are stored and must be configured here.', 'The database name, username, and password are required fields; table prefix is optional.', 'The database name may contain only alphanumeric characters, dollar (\$) and underscore (\_).', and 'If the database currently does not exist, and the user you specify has permission, Moodle will attempt to create a new database with the correct permissions and settings.' Below this box are several input fields: 'Database host' (localhost), 'Database name' (moodledb), 'Database user' (moodledbuser), 'Database password' (moodledbpwd), 'Tables prefix' (mdl\_), 'Database port' (empty), and 'Unix socket' (empty). At the bottom of the form are two buttons: '« Previous' and 'Next »'. The Moodle logo is visible at the bottom center of the page.

- If database connection works fine, next step is to accept copyright and license...

The screenshot shows the 'Installation' screen for Moodle, specifically the 'Copyright notice' step. The title 'Moodle - Modular Object-Oriented Dynamic Learning Environment' is at the top, followed by 'Copyright notice'. The text includes: 'Copyright (C) 1999 onwards Martin Dougiamas (https://moodle.com)', 'This program is free software: you can redistribute it and/or modify it under the terms of the GNU General Public License as published by the Free Software Foundation, either version 3 of the License, or (at your option) any later version.', 'This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.', and 'See the Moodle License information page for full details: https://docs.moodle.org/dev/License'. At the bottom, there is a 'Confirm' section with a text input field, a label 'Have you read these conditions and understood them?', and two buttons: 'Continue' and 'Cancel'.

- ... and then, the system checks if your environment meets the requirements for your Moodle version. Most of them are related to PHP and some of them are optional and can (or not) be reviewed any time later. If you have a green message at the bottom you can proceed.

### Installation - Moodle 3.6.10 (Build: 20200511)

Moodle 3.6.10 (Build: 20200511)

For information about this version of Moodle, please see the online [Release Notes](#)

#### Server checks

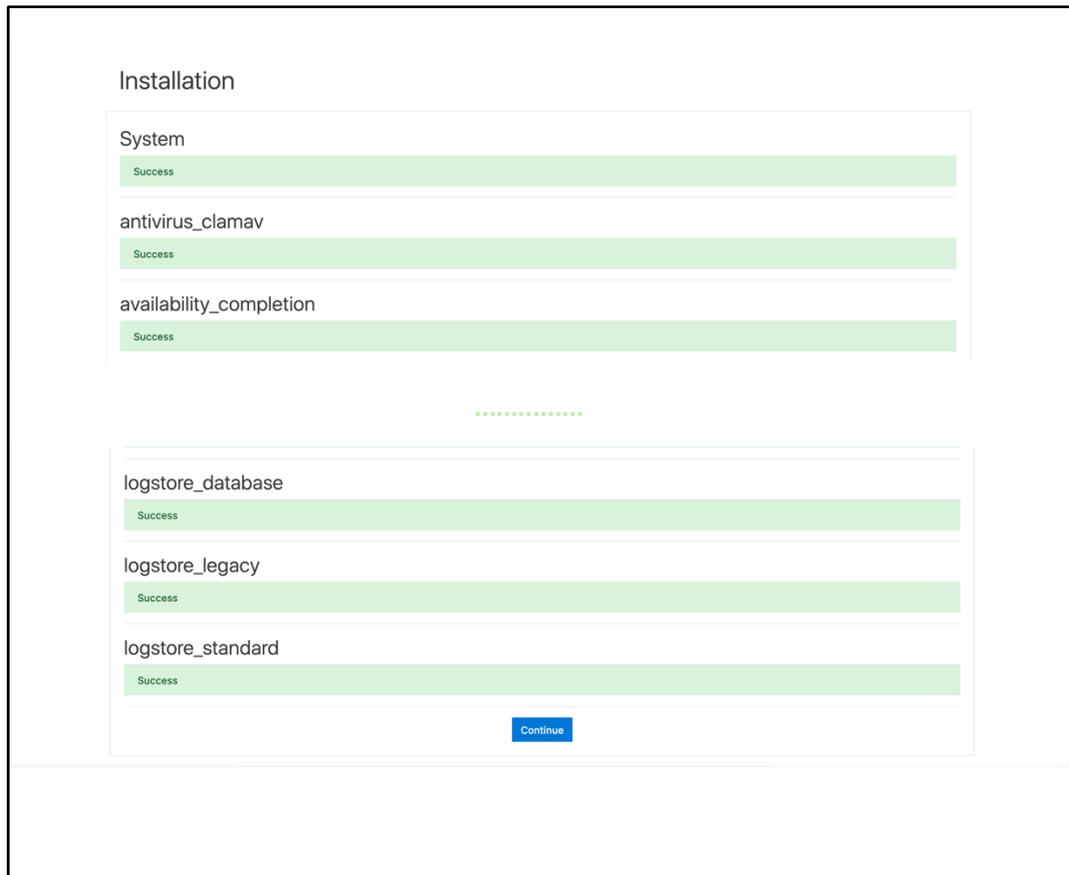
Name	Information	Report	Plugin	Status
php_extension	xmlrpc	<span style="color: blue;">i</span> should be installed and enabled for best results The XMLRPC extension is useful for web services and Moodle networking.	Check	<span style="color: orange;">!</span>
php_setting	opcache.enable	<span style="color: blue;">i</span> PHP setting should be changed. PHP opcode caching improves performance and lowers memory requirements, OPcache extension is recommended and fully supported.	Check	<span style="color: orange;">!</span>
unicode		<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
database	mysql (5.7.26)	<span style="color: blue;">i</span> version 5.6 is required and you are running 5.7.26		<span style="color: green;">OK</span>
php		<span style="color: blue;">i</span> version 7.0.0 is required and you are running 7.2.22		<span style="color: green;">OK</span>
pcreunicode		<span style="color: blue;">i</span> should be installed and enabled for best results		<span style="color: green;">OK</span>
php_extension	iconv	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	mbstring	<span style="color: blue;">i</span> should be installed and enabled for best results		<span style="color: green;">OK</span>
php_extension	curl	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	openssl	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	tokenizer	<span style="color: blue;">i</span> should be installed and enabled for best results		<span style="color: green;">OK</span>
php_extension	soap	<span style="color: blue;">i</span> should be installed and enabled for best results		<span style="color: green;">OK</span>
php_extension	ctype	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	zip	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	zlib	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	gd	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	simplexml	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	spl	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	pcr	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	dom	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	xml	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	xmlreader	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	intl	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	json	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	hash	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_extension	fileinfo	<span style="color: blue;">i</span> must be installed and enabled		<span style="color: green;">OK</span>
php_setting	memory_limit	<span style="color: blue;">i</span> recommended setting detected		<span style="color: green;">OK</span>
php_setting	file_uploads	<span style="color: blue;">i</span> recommended setting detected		<span style="color: green;">OK</span>

#### Other checks

Information	Report	Plugin	Status
site not https	<span style="color: blue;">i</span> if this test fails, it indicates a potential problem It has been detected that your site is not secured using HTTPS. It is strongly recommended to migrate your site to HTTPS for increased security and improved integration with other systems.	Check	<span style="color: orange;">!</span>
Your server environment meets all minimum requirements.			<span style="color: green;">OK</span>

[Continue](#)

- Actual installation occurs and it mainly deals with the setup of Moodle database structure and initial content. It can take a little time and no errors should come up during this phase. At the end you will see a “Continue” button.



- After that some basic configuration information is requested. First element is the main Admin account. You need to provide a password, first name, surname and a valid and working email address. Is REALLY IMPORTANT to be sure you keep and remember this username/password so you can always manage any issue on your installation. At any moment later you will be able to add administrators and other roles accounts to your system.

The screenshot shows a web interface titled "Installation". At the top, there is a paragraph of instructions: "On this page you should configure your main administrator account which will have complete control over the site. Make sure you give it a secure username and password as well as a valid email address. You can create more admin accounts later on." To the right of this text is a link that says "Expand all".

The main content area is a form with a "General" section. The form fields and their values are as follows:

- Username:** admin
- Choose an authentication method:** Manual accounts. Below this, a note states: "The password must have at least 8 characters, at least 1 digit(s), at least 1 lower case letter(s), at least 1 upper case letter(s), at least 1 non-alphanumeric character(s) such as \*, -, or #".
- New password:** A masked password field with a strength indicator (1 red dot) and a help icon. There is a checkbox for "Force password change" which is currently unchecked.
- First name:** Admin
- Surname:** User
- Email address:** admin@acme.com
- Email display:** A dropdown menu set to "Allow everyone to see my email address".
- City/town:** An empty text input field.
- Select a country:** A dropdown menu set to "Select a country...".
- Timezone:** A dropdown menu set to "Server timezone (Europe/Madrid)".
- Description:** A large text area with a "HTML format" dropdown menu below it.

Below the "General" section are two expandable sections: "Additional names" and "Optional". At the bottom of the form are two buttons: "Update profile" (in blue) and "Cancel" (in grey). A message at the very bottom states: "There are required fields in this form marked [red exclamation mark icon]".

- And finally, a couple of additional information pieces: Full name and short name for the Site, default Time-zone, Self-registration and email “no reply” address.

No reply address should be a valid email address and it will be in certain circumstances the sender address of outgoing messages.

Unless you have a good reason as first option, we recommend keeping Self-registration option disabled.

### Installation

#### New settings - Front page settings

Full site name fullname

Short name for site (eg single word) shortname

Front page summary summary

**¶** **i** **B** **I** **☰** **☰** **✂** **🔄** **🖼**

This summary can be displayed on the front page using the course/site summary block.

#### New settings - Location settings

Default timezone timezone  Default: Europe/Madrid

This is the default timezone for displaying dates - each user can override this setting in their profile. Cron tasks and other server settings are specified in this timezone. You should change the setting if it shows as "Invalid timezone"

#### New settings - Manage authentication

Self registration registrereacth  Default: Disable

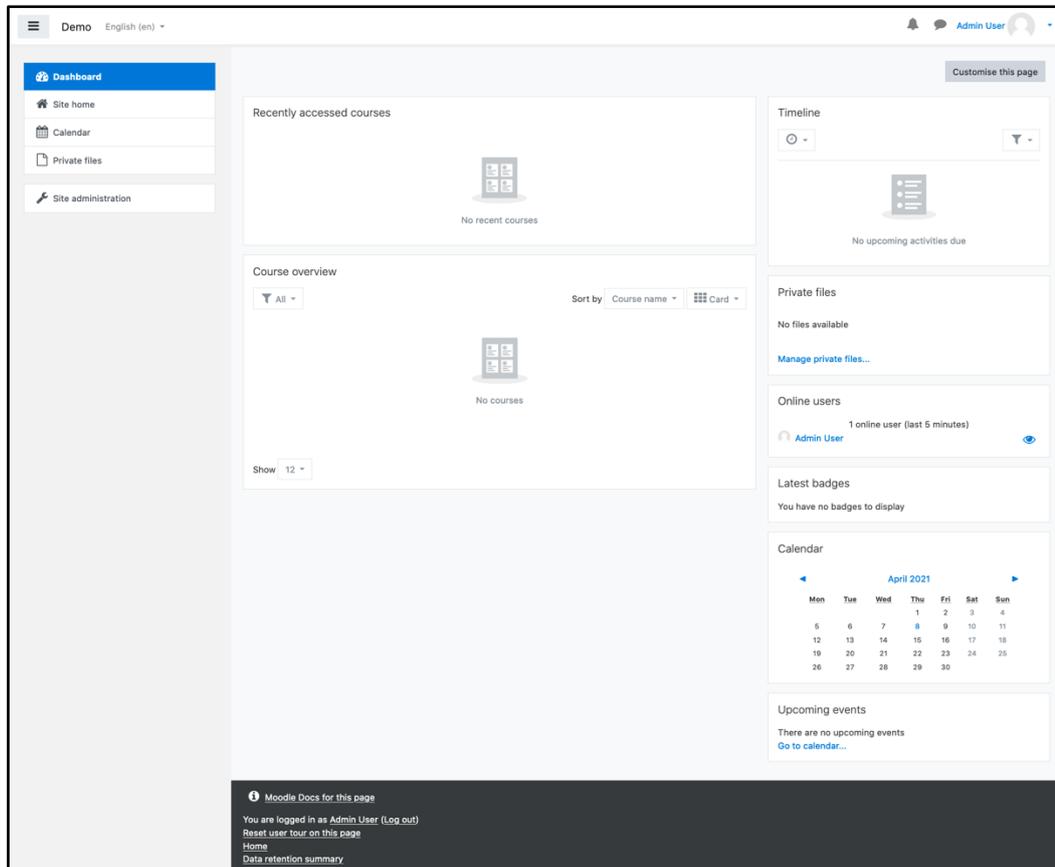
If an authentication plugin, such as email-based self-registration, is selected, then it enables potential users to register themselves and create accounts. This results in the possibility of spammers creating accounts in order to use forum posts, blog entries etc. for spam. To avoid this risk, self-registration should be disabled or limited by *Allowed email domains* setting.

#### New settings - Outgoing mail configuration

No-reply address noreplyaddress  Default: noreply@localhost

Emails are sometimes sent out on behalf of a user (eg forum posts). The email address you specify here will be used as the "From" address in those cases when the recipients should not be able to reply directly to the user (eg when a user chooses to keep their address private). This setting will also be used as the envelope sender when sending email.

- At this point basic installation is finished and you will be brought to Moodle entry page with an open session with admin account. Usually, entry page is the personal Dashboard:



#### 4. Scheduled tasks:

Moodle's background tasks as sending out forum notifications, performing course backups and many others are performed by as a PHP command line script which we need to set to be executed regularly. This is known as a **cron** script. This point is extremely important and your Installation will not run correctly without it.

In Linux Systems it can be done as follows:

- Enter your system in the command line as root
- Use the command:

```
# crontab -u <moodle web user> -e
```

It will open an editor. Enter a line as following, save and exit:

```
* * * * * <your path to php, typically>/usr/bin/php /your_path_to/moodle/admin/cli/cron.php > /dev/null 2>&1
```

This will launch the **cron** PHP script regularly each minute.

More details and references for other operating systems can be found at:

[https://docs.moodle.org/36/en/Cron#Working\\_out\\_the\\_Moodle\\_cron\\_command](https://docs.moodle.org/36/en/Cron#Working_out_the_Moodle_cron_command)

## 5. Other configurations:

Besides, you can eventually review some other configurations. It is not required for a quick start and can be reviewed any moment later.

- Outgoing mail is needed for email notifications, password recoveries etc. You should visit following page in your Moodle and review and test your configuration  
<http://yourwebserver.com/moodle/admin/settings.php?section=outgoingmailconfig>
- Maybe you would need to ensure a bigger maximum size for upload files to Moodle:  
[https://docs.moodle.org/36/en/Installation\\_FAQ#Maximum\\_upload\\_file\\_size\\_-\\_how\\_to\\_change\\_it.3F](https://docs.moodle.org/36/en/Installation_FAQ#Maximum_upload_file_size_-_how_to_change_it.3F)
- Review security policies and security recommendations  
[http:// yourwebserver.com /moodle/admin/settings.php?section=sitepolicies](http://yourwebserver.com/moodle/admin/settings.php?section=sitepolicies)  
[https://docs.moodle.org/36/en/Security\\_recommendations](https://docs.moodle.org/36/en/Security_recommendations)

So far, we presented the basic installation process. Full detail and lots of useful references can be found by starting at:

[https://docs.moodle.org/36/en/Installing\\_Moodle](https://docs.moodle.org/36/en/Installing_Moodle)

## 2.2. S4F Plugins

S4F stats system is implemented as a standard Moodle extension. In this section the installation procedure will be presented. Materials required for this installation are available from “**Science4Fun Moodle Warehouse**” area at:

<http://learning.science4fun.eu/course/view.php?id=69>

*In order to gain access to this area you need a registered account in S4F Project’s Moodle platform with specific permissions for this technical area. By default, only Project’s Partners can access. If you need to get this access, please contact your National Partner Organization or Project’s Coordinator.*

### 2.2.1. Installation and configuration

#### *Installing the plugin*

We will present here the classic standard for plugin installation: manually at the server. You will need a way to upload files to your server and access to the command line, via a hosting control panel functionality or direct ftp/ssh/sftp protocols, please check with your hosting support the best way for you.

*In Moodle, plugins can also be installed from the Web interface but depending on write permission details in your Moodle installation, the Web plugins installation could not be working so would have to use the command line. Following Moodle documentation article will provide additional information.*

[https://docs.moodle.org/36/en/Installing\\_plugins#Installing\\_a\\_plugin](https://docs.moodle.org/36/en/Installing_plugins#Installing_a_plugin)

Install procedure is as follows:

- Download last version of S4F plugin: At “**Science4Fun Moodle Warehouse**” you can find the plugin installation package as a .ZIP file named:

`local_s4f-2021XXXXXX.zip`

‘local\_s4f’ is the plugin identification in Moodle (‘local’ type plugin, named ‘s4f’); numbers in the name identify the version based on release date.



Select the most recent version, in case several ones are available.

- Upload a copy of the plugin install package to some ‘upload folder’ your Moodle server.
- S4F is a ‘local’ type plugin. That means its code has to be copied to the following path in your Moodle installation:

```
<path to your Moodle Web folder>/local
```

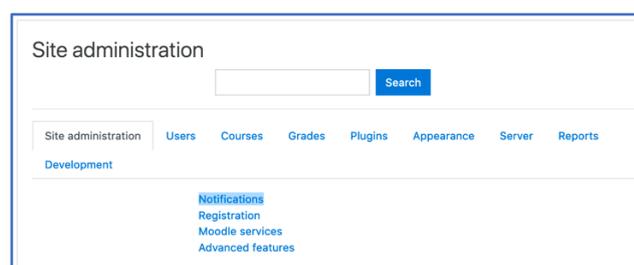
Extract the zip file you uploaded into said path. Using command line, this can be done for instance (for a Linux server) with:

```
-bash-4.2$ cd <your Moodle Web folder>...../local/  
-bash-4.2$ unzip <upload folder>/local_s4f-2020120400.zip
```

This will create a new ‘s4f’ folder under ‘local’. Remember everything has to be done with the identity of the Web application and ensuring right permissions. After that zip file is no longer necessary.

```
-bash-4.2$ chmod -R 755 s4f/  
-bash-4.2$ chown -R <web-user>:<web-group> s4f/  
-bash-4.2$ ls -al  
.....  
drwxr-xr-x 16 <web-user> <web-group> 512 abr 10 17:49 s4f  
.....
```

- Access your Moodle installation as an Administrator and navigate to  
[... > Site administration > Plugins > Notifications](#)



The system will detect an installation or upgrade is pending a will start the process automatically:

It shows detected new plugin and version and offers to “upgrade Moodle database now”. By selecting this button, the real install is performed and shows a result page:

First Install of “Science For Fun Statistics” is completed.

- An extra step: S4F shows its menu in **Moodle Navigation Block**. Depending active aspect ‘theme’, Navigation block can be non-visible. For instance, “boost” theme, which is the default after install Moodle 3.6.10, does not show Navigation Block. The best way to proceed can be to select a different theme as ‘clean’ or ‘more’.

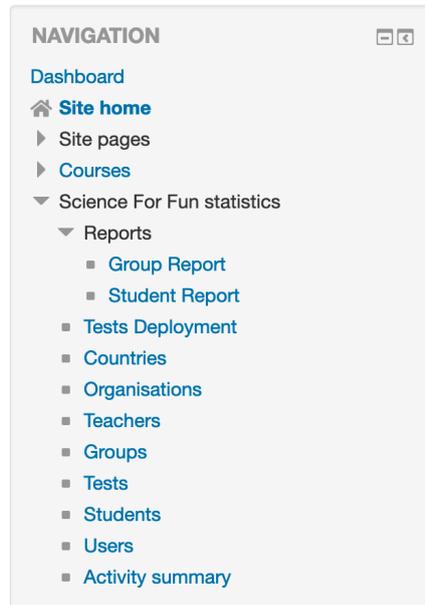
*There are lots of other aspect ‘themes’ available in Moodle Plugins Directory. You can select and install one of your preference.*

<https://moodle.org/plugins/browse.php?list=category&id=3>

- In order to change selected ‘theme’ for your Moodle Installation navigate to [... > Site administration > Appearance > Themes > Theme Selector](#) and click “Change theme” on the “Default” section ...

... and then browse to Theme “Clean” and click “Use Theme”.

This will change the aspect of your Moodle and it will show Navigation block with S4F menu included:



#### *File Repository and S4F Test Models*

In order to support Tests Deployment procedure, we need to make available to administrators the set of Test Models ready to be copied for users. It was decided to use a Moodle 'File System' Repository to hold deployment files. A repository in Moodle is a kind of additional file storage it can access to read files in different situations. There are different types of repositories and 'File System' is the simplest, being a link to a simple folder in server's file system. So, we will create a repository for S4F.

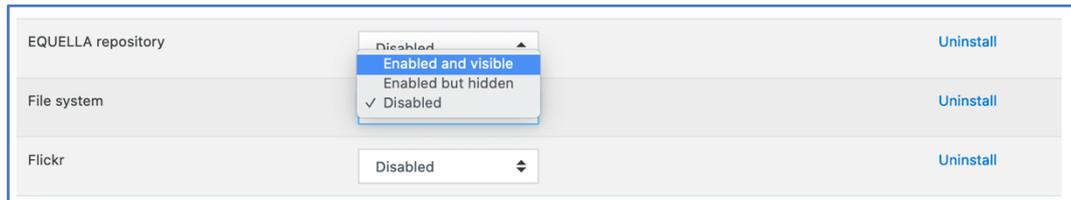
- First, we need to create a physical folder in the server as follows: under '**moodledata**' folder it should exist a sub folder named '**repository**' where Moodle put all 'File System' repositories. And under that we need to create another folder for this purpose; let's say we call our repository folder '**science4funtestmodels**'. Following example assumes you have admin access to a Linux server and the upper '**repository**' folder does not exist, so we need to create these two folders:

```
-bash-4.2$ cd <your Moodle Data directory>...../moodledata/  
-bash-4.2$ mkdir repository/  
-bash-4.2$ mkdir repository/science4funtestmodels  
-bash-4.2$ chmod -R 755 repository/  
-bash-4.2$ chown -R <web-user>:<web-group> repository/  
-bash-4.2$ ls -al repository/  
drwxrwxrwx  4 <web-user> <web-group> 4096 may 28  2020 .  
drwxr-xr-x  3 <web-user> <web-group> 4096 abr 10 17:49 science4funtestmodels
```

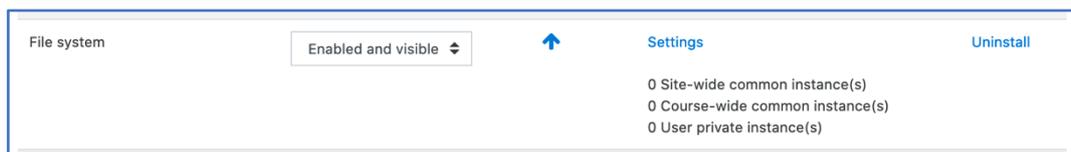
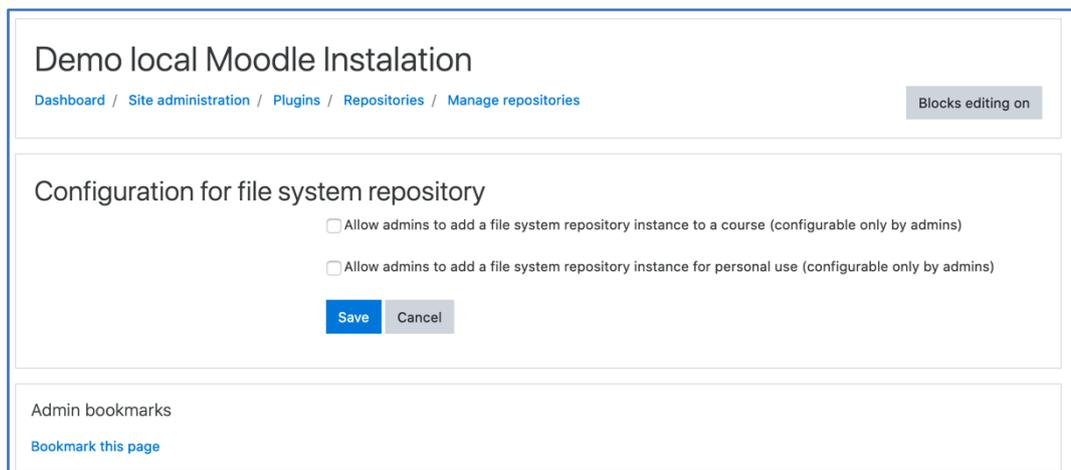
- Next, we need to register this repository in Moodle. So, from your Moodle as admin user, navigate to

[... > Site administration > Plugins > Repositories > Manage repositories](#)

You will see a list of Repository Types available. Look for 'File system' and select **"Enabled and visible"** for its **"Active?"** column...



... and you will be at the initial settings page. Leave everything as by default and Save.



Now we can click settings again and click **“Create a repository instance”** button...

Demo local Moodle Instalation

Dashboard / Site administration / Plugins / Repositories / File system

Blocks editing on

### Configuration for file system repository

Allow admins to add a file system repository instance to a course (configurable only by admins)

Allow admins to add a file system repository instance for personal use (configurable only by admins)

[Save](#) [Cancel](#)

### Repositories instances of the site

Name	Repository plugins	Settings	Delete
------	--------------------	----------	--------

[Create a repository instance](#)

... and enter the **Name**: “S4F Test Models” and select the folder we created in the previous step: “science4funtestmodels”. Save the Form to que the repository registered.

Demo local Moodle Instalation

Dashboard / Site administration / Plugins / Repositories / Create a repository instance

Blocks editing on

### Configuration for file system repository

Name !    
 - Required

↕

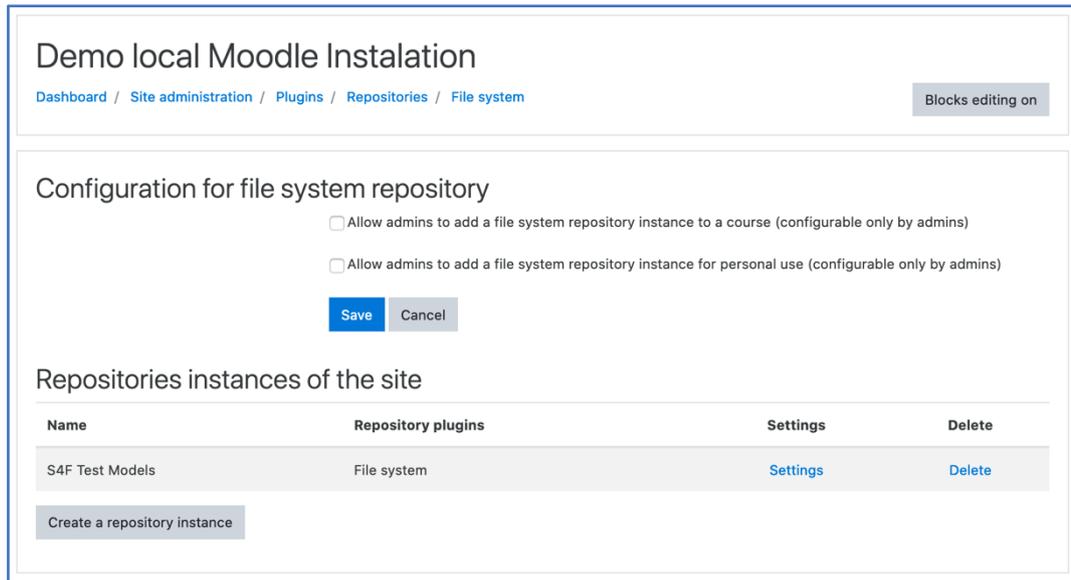
These folders are within the **/Applications/MAMP/moodledata/repository/** directory.

Allow relative files  This allows all files in the repository to be accessible using relative links.

[Save](#) [Cancel](#)

There are required fields in this form marked !.

We can confirm again in the File system repository Settings page.

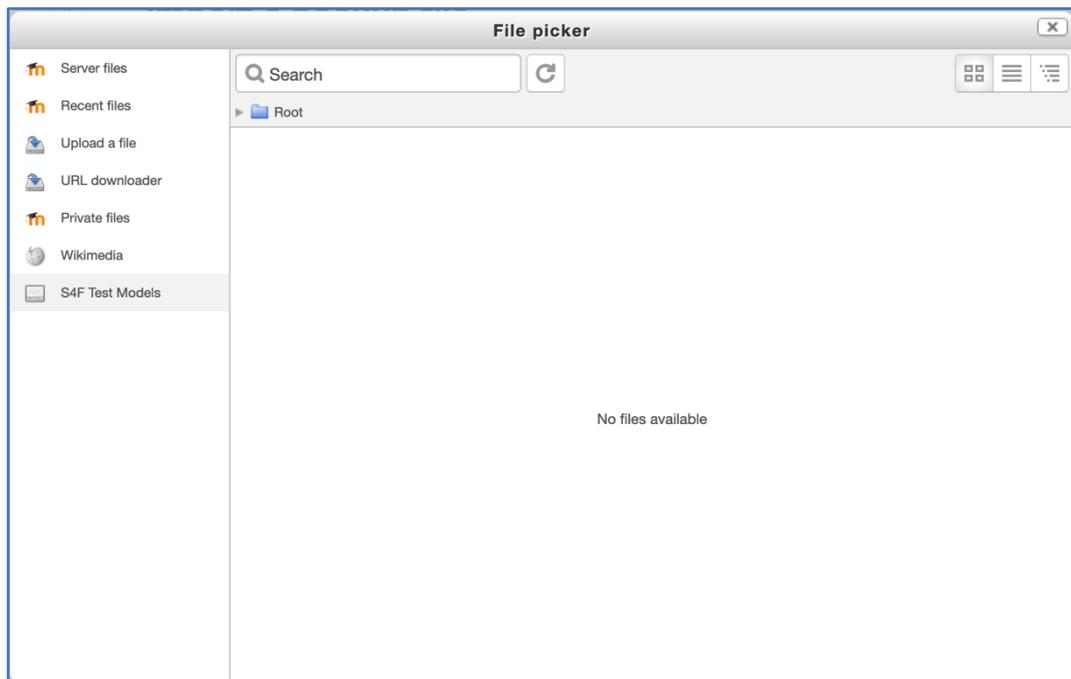


The screenshot shows the Moodle administration interface for a "Demo local Moodle Installation". The breadcrumb trail is "Dashboard / Site administration / Plugins / Repositories / File system". A "Blocks editing on" button is visible in the top right. The main heading is "Configuration for file system repository". Below this, there are two checkboxes: "Allow admins to add a file system repository instance to a course (configurable only by admins)" and "Allow admins to add a file system repository instance for personal use (configurable only by admins)". Both are currently unchecked. There are "Save" and "Cancel" buttons. Below the configuration is a section titled "Repositories instances of the site" which contains a table with the following data:

Name	Repository plugins	Settings	Delete
S4F Test Models	File system	<a href="#">Settings</a>	<a href="#">Delete</a>

Below the table is a "Create a repository instance" button.

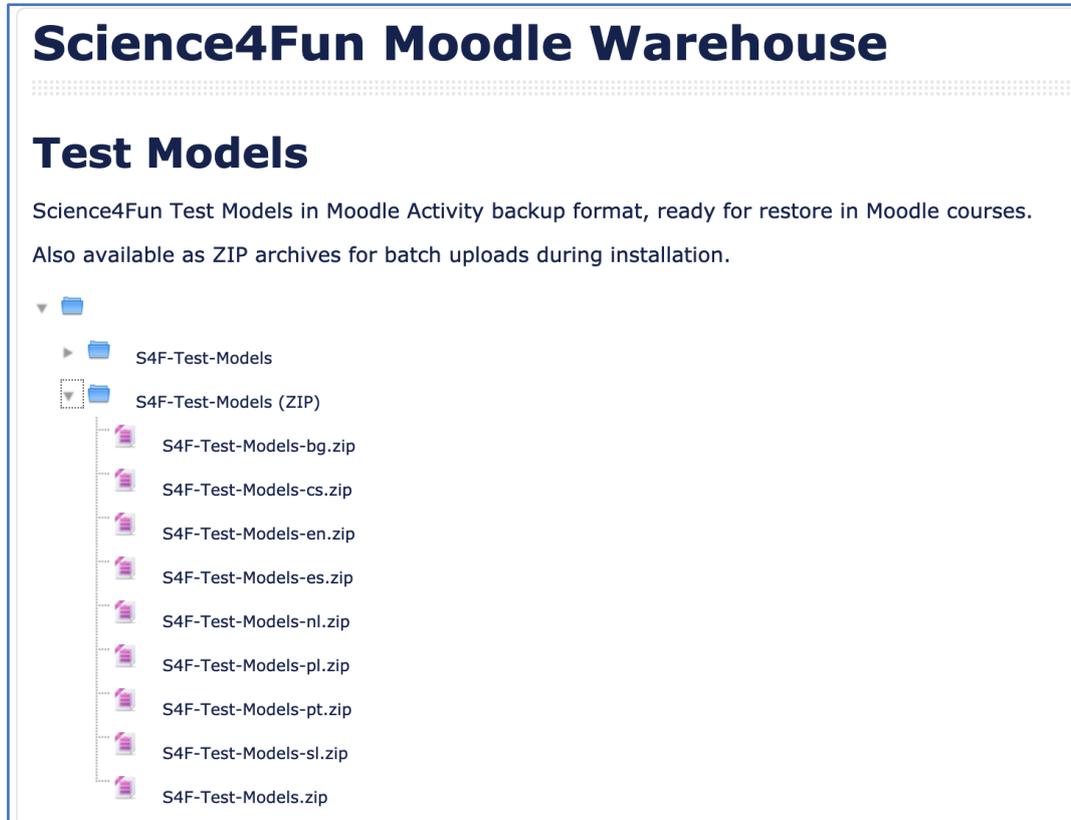
From now on, at any place where Moodle allows to select or upload a file you will be able to select this repository and any file into it. This is done through “**File Picker**” window (left column are available repositories):



The screenshot shows the "File picker" window. On the left is a sidebar with a list of repository options: "Server files", "Recent files", "Upload a file", "URL downloader", "Private files", "Wikimedia", and "S4F Test Models". The "S4F Test Models" option is selected and highlighted. The main area of the window has a search bar, a refresh button, and a breadcrumb trail showing "Root". The main content area is empty and displays the text "No files available".

- Now we are able to populate to the repository folder with Test Models. Start by downloading S4F Test Models form:

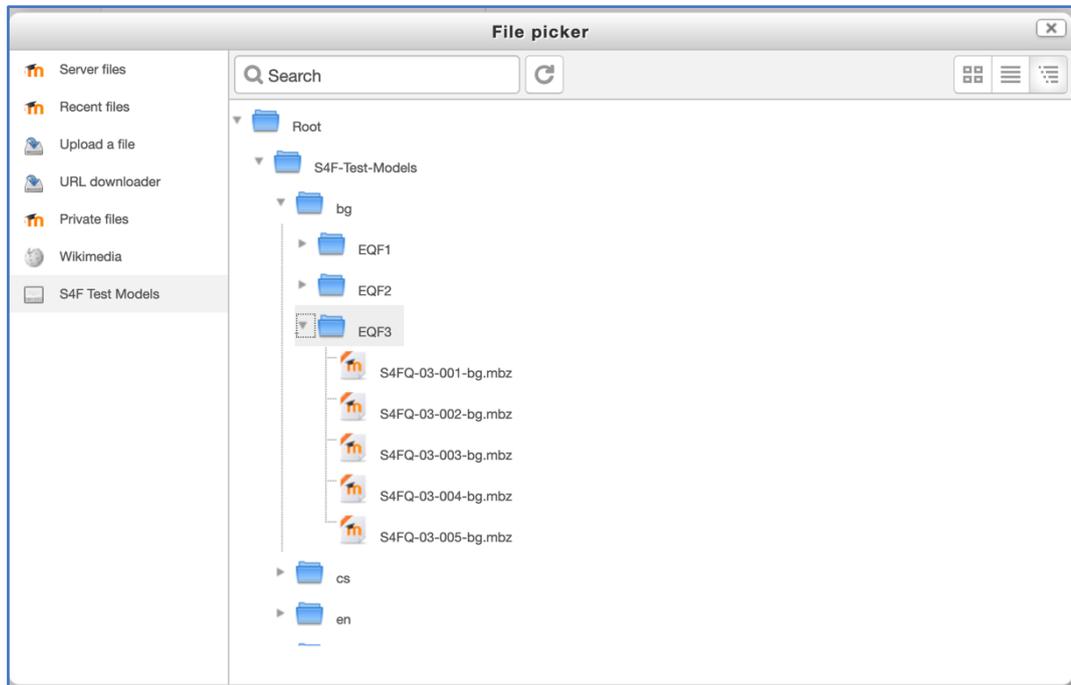
<http://learning.science4fun.eu/mod/folder/view.php?id=2356>



Here you can browse and download single test models one by one or packages in ZIP archives. You might want to use only Test-Models for a single language, or the full set will all languages included (around 170 MBytes). Select your zip file, download it, upload it to your Moodle repository and extract it. Again, this task has to be done with your low-level server access for file upload and maybe command line. In the following example we select the full package; when uploaded we can for instance (Linux server):

```
-bash-4.2$ cd <your Moodle Data directory>...../moodledata/  
-bash-4.2$ cd repository/science4funtestmodels  
-bash-4.2$ ls -al  
. . . . .  
-rw-r--r--@ 1 <web-user> <web-group 174439939 Apr 13 21:24 S4F-Test-Models.zip  
-bash-4.2$ unzip S4F-Test-Models.zip  
. . . . .  
. . . . .
```

You will see a new sub-folder created with 2 more levels: languages and EQF levels. At the lower level you can find test models as Moodle backup files (.mbz). At this point zip file is not needed and can be removed or moved apart. The view of the repository with Test Models available is now:



- In addition to that, a final element needs to be copied to the repository. Download the following file from S4F Moodle Warehouse area and copy it to the repository folder:

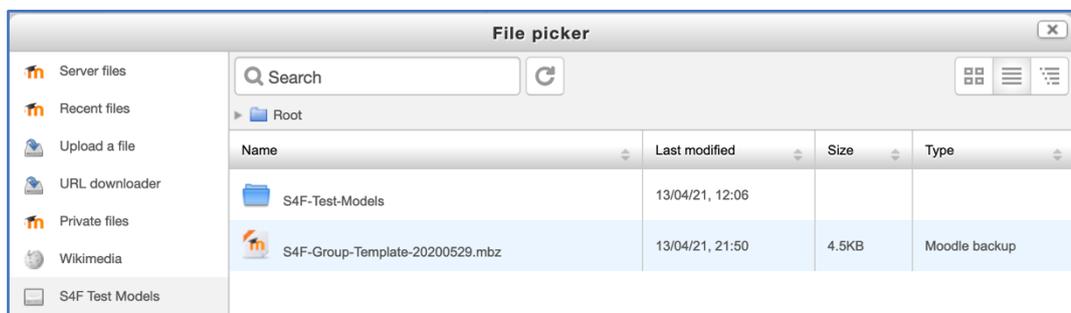
<http://learning.science4fun.eu/course/view.php?id=69>

**Science4Fun Course and Quiz Templates**

 **S4F-Group-Template-20200529.mbz** 4.5KB Moodle backup Uploaded 13/04/21, 11:40

Moodle Course template for a S4F Group.  
A Moodle Course backup file to be used with 'restore' in order to make a standard setup of general course settings for S4F. It provides an empty Moodle course.

Finally, repository content should look like this:



Later in this document we will show how to use these Test Models and Group Template in the deployment procedure.

### *S4F category and Question Bank*

As we will describe in detail later, In S4F Moodle Base Line Tests are implemented as Moodle quizzes into Moodle courses, one dedicated to each S4F Group. Everything should be arranged under a Moodle general course category for the project. Now is the time to create this Project Category.

Besides, a shared Moodle Question Bank is created with all the questions designed by the project. The question bank was used to create Test Model quizzes and its main utility is to be able to inspect all the questions but also can be used to create new questions or new different models if needed in the future. Strictly speaking is not completely necessary to reproduce the Question Bank in order to deploy tests but it is proposed here its installation, so your S4F Moodle is complete.

- Create a Moodle Course Category for the project. Navigate to:

*... > Site administration > Courses > Add a category*

... and create a new category at the Top level named: **“Science4Fun Tests”**:

- Create a Moodle Course for Question Bank Management: In order to make easy Shared Question Bank Management in the context of the new Category, we need to create a first Moodle Course.

Navigate to:

... > [Site administration](#) > [Courses](#) > [Add a new course](#)

... and create a new course. Be sure you select “**Science4Fun Tests**” category. We suggest the name “**Science4Fun Question Bank**” and short name “**S4F-QB**” (course short name is mandatory and has to be unique in the system). You can leave everything else unchanged.

After course creation Moodle brings you into the Participants view of the new course. You can just browse to the course main page using the navigation line.

- From the new course we need to enter **Question Bank** management. You will find it in the Course administration menu. This can be located at different places depending on the aspect theme you are using:

Next step is to create a Question Bank Category. It will be the root of S4F Question Bank. From the new course navigate to:

... > [Course administration](#) > [Question bank](#) > [Categories](#)

In Section **Add Category** create a new category named **“S4FQ”** and be sure you select **“Top for “Science4Fun Tests”** as **Parent category**:

The screenshot shows the 'Add category' form in a learning management system. The form is titled 'Edit categories' and shows three existing categories: 'Default for S4F-QB (0)', 'Default for Science4Fun Tests (0)', and 'Default for System (0)'. A dropdown menu is open, showing the selection of 'Top for Science4Fun Tests' as the parent category. The form includes fields for 'Parent category', 'Name', 'Category info', and 'ID number', with a red exclamation mark indicating a required field. A blue 'Add category' button is at the bottom.

- Again, from the “**Science4Fun Moodle Warehouse**” area, locate the “**Question Bank exports**” at

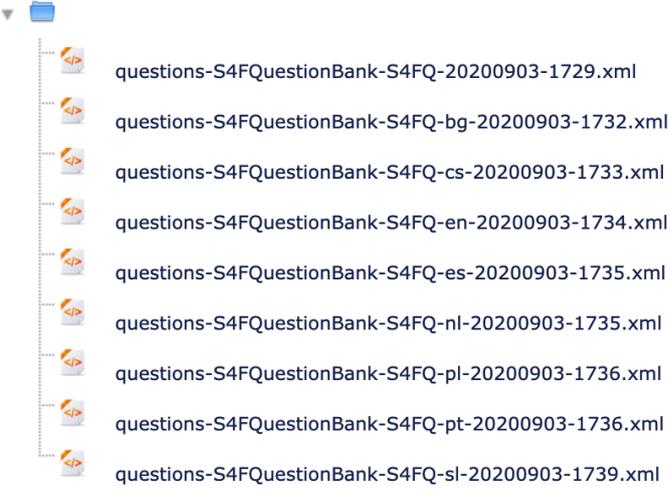
<http://learning.science4fun.eu/mod/folder/view.php?id=2355>

## Science4Fun Moodle Warehouse

---

### Question Bank exports

Science4Fun questions in Moodle .XML questions export format.  
One file for whole questions set and a separated file for each project language.



The screenshot shows a folder view with the following files:

- questions-S4FQuestionBank-S4FQ-20200903-1729.xml
- questions-S4FQuestionBank-S4FQ-bg-20200903-1732.xml
- questions-S4FQuestionBank-S4FQ-cs-20200903-1733.xml
- questions-S4FQuestionBank-S4FQ-en-20200903-1734.xml
- questions-S4FQuestionBank-S4FQ-es-20200903-1735.xml
- questions-S4FQuestionBank-S4FQ-nl-20200903-1735.xml
- questions-S4FQuestionBank-S4FQ-pl-20200903-1736.xml
- questions-S4FQuestionBank-S4FQ-pt-20200903-1736.xml
- questions-S4FQuestionBank-S4FQ-sl-20200903-1739.xml

It is a files folder from where you can download S4F questions. Files here are Moodle question XML export format, and you can use them to upload the questions to your Moodle installation. As for Test Models previously, you could choose to use one or more single language exports or the full export containing all languages (first one in the capture). Download selected file or files.

- Navigate to your Question Bank Import form at

... > [Course administration](#) > [Question bank](#) > [Import](#)

Questions Categories Import Export

### Import questions from file

▼ Collapse all

▼ File format

- Aiken format
- Blackboard
- Embedded answers (Cloze)
- Examview
- GIFT format
- Missing word format
- Moodle XML format
- WebCT format

▼ General

Import category: S4FQ

Get category from file  Get context from file

Match grades: Error if grade not listed

Stop on error: Yes

▼ Import questions from file

Import: Choose a file...  
questions-S4FQuestionBank-S4FQ-20200903-1729.xml

Import

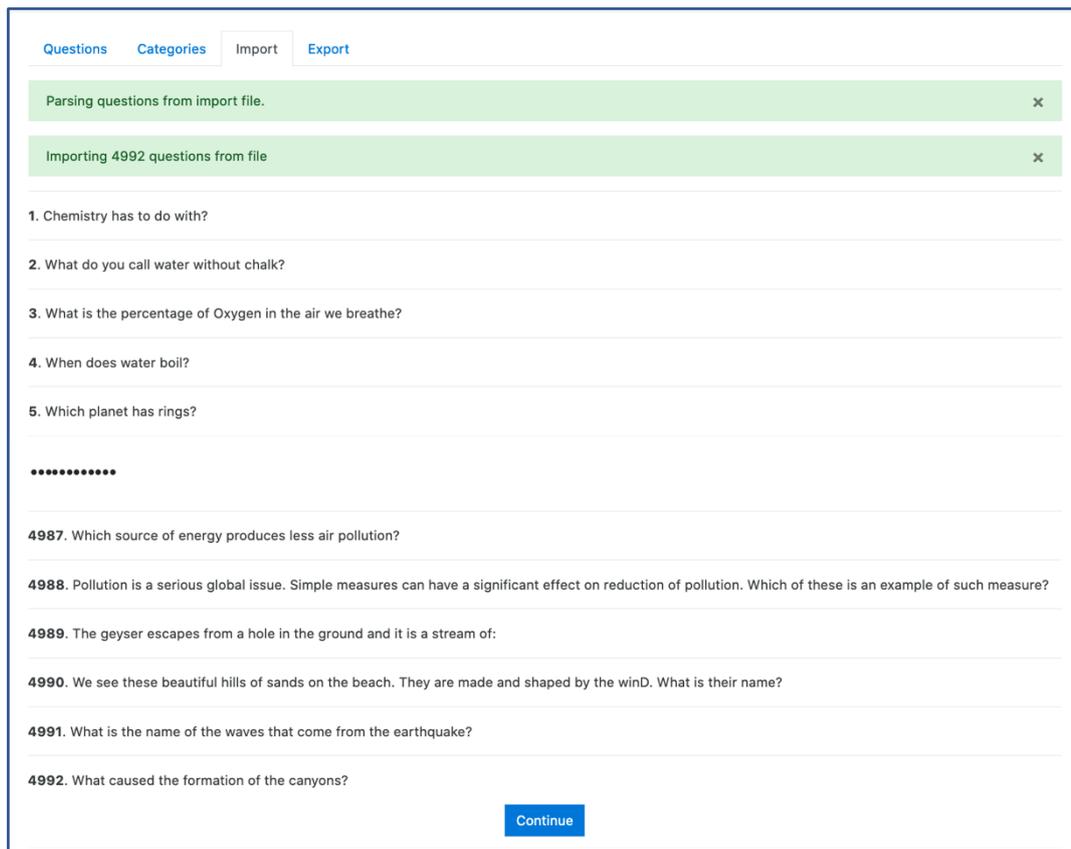
There are required fields in this form marked ! .

Important details in this form are:

- File format: Select “**Moodle XML format**”
- Import category: select “**S4FQ**” root category
- Select “**Get category from file**”
- Unselect “**Get context from file**”
- Import questions from file: Drag and drop or upload your file on it

*In the example we are using full Question Bank export.*

### After result screen...



... You can review your Question Bank Tree by browsing categories and questions at:

[... > Course administration > Question bank > Questions](#)

From the new course we need to enter **Question Bank** management. You will find it in

#### 2.2.2. Upgrade

During the project and later further version upgrades for S4F plugin can be provided. In this situation, that means no changes are made on Test Models but only to the plugin software itself, Test Models repository and Question Bank do not need to be changed.

The procedure for updating your plugin is essentially the same as for initial installation. The only difference is that plugin folder already exists. Basic steps are:

- Download the install package for the new version: **local\_s4f-XXXXXXXXXX.zip**
- Copy it up to your server
- (our recommendation) Remove or move out current plugin folder to create a clean new for the upgrade. If you move it out of Moodle code, there is an option to step backwards in the case of problems.

*In a Linux server you can just rename the folder to something starting with a '.' (a hidden folder), in this way Moodle will not interpret this as a new plugin to be installed. After upgrade is successful you can remove this backup copy.*

```
-bash-4.2$ cd <your Moodle Web folder>...../local/
-bash-4.2$ mv s4f .s4f
```

- Unzip the plugin package and review permissions as in first installation.
- Access your Moodle installation as an Administrator and navigate to [... > Site administration > Plugins > Notifications](#)

**Plugins check**

This page displays plugins that may require your attention during the upgrade, such as new plugins to be installed, plugins to be upgraded, missing plugins etc. Additional plugins are displayed if there is an available update for them. It is recommended that you check whether there are more recent versions of plugins available and update their source code before continuing with this Moodle upgrade.

[Check for available updates](#)

Last check done on 13 April 2021, 1:11 pm

**Plugins requiring attention**

[Plugins requiring attention](#) 1 [All plugins](#) 398

Plugin name / Directory	Current version	New version	Requires	Source / Status
<b>Local plugins</b>				
Science For Fun statistics /local/s4f	2020120400	2021040800	• Moodle 2016052300	<a href="#">Additional</a> <a href="#">To be upgraded</a>

[Reload](#)

[Upgrade Moodle database now](#)

Moodle will detect the need for update, and you can proceed using “**Upgrade Moodle database now**” button.

**Upgrading to new version**

local\_s4f

- 2020122300: Success (0.03 seconds)
- 2020122301: Success (0.02 seconds)
- 2020122800: Success (0.12 seconds)
- 2021040800: Success (0.01 seconds)
- Success (0.24 seconds)

[Continue](#)

Maybe several upgrade steps can be executed. After “**Continue**” maybe the system would request to review new settings parameters for the plugin.

### 3. Moodle Structure for S4F Tests

Present section describes how things are arranged in Moodle for the project. This is more a view for end users (teachers and students). It gives us also an useful view for administrators who have to run deployment of Groups and Tests.

#### 3.1. Question Bank Structure

S4F Questions for all the questionnaires are loaded in a shared Question Bank linked to the Moodle category: **Science4Fun Tests**, which is in the principal node of the Moodle of the project.

#### Category: Science4Fun Tests

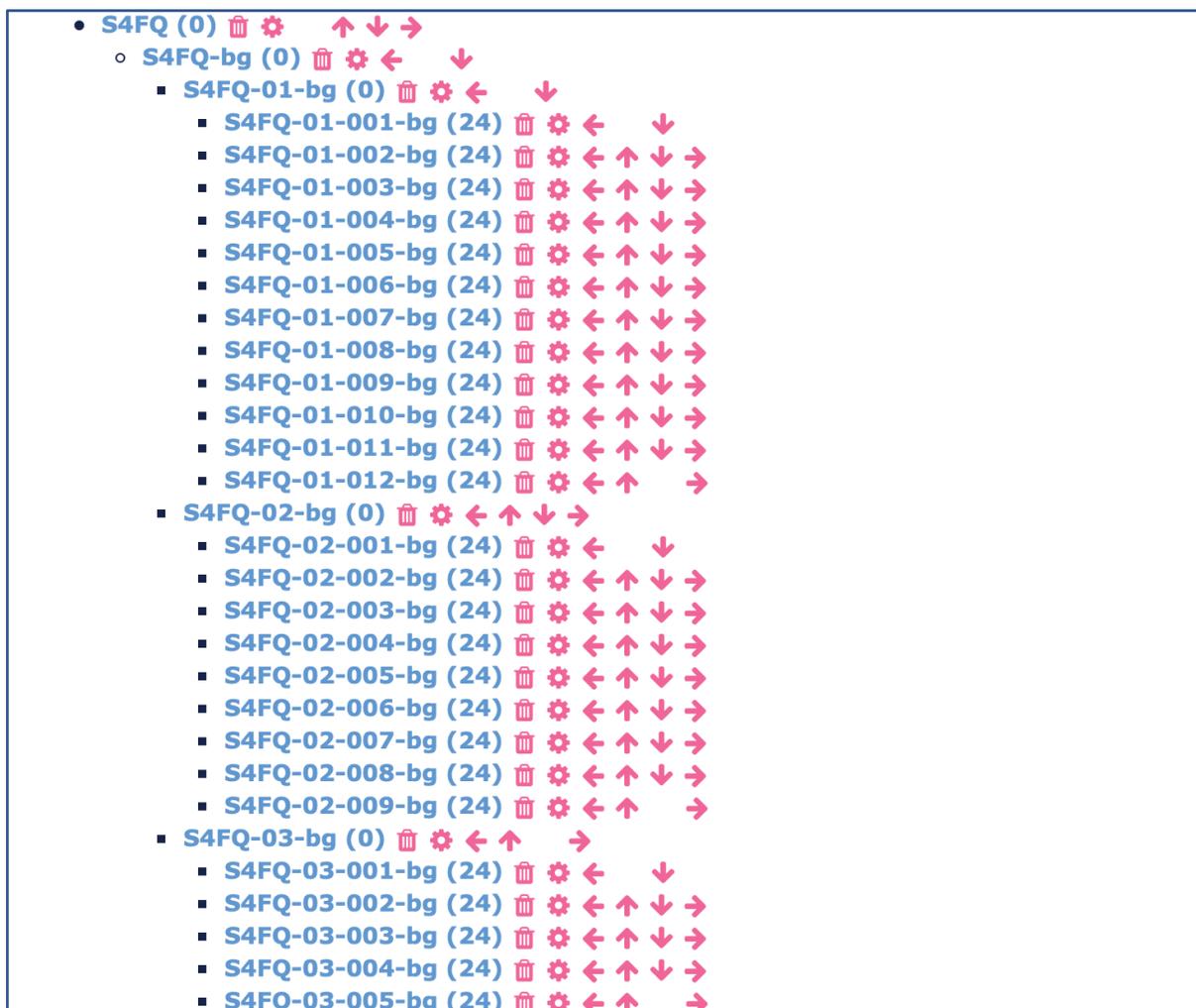
The category is structured as follow: Language/EQF/Questionnaire. This way, each language has a root for each of the levels where the tests are located. Level 1 consists of 12 questionnaires, level 2 of 9 questionnaires and level 3 of 5; all of them composed by 24 questions.

```
S4FQ
  S4FQ-en
    S4FQ-01-en
      S4FQ-01-001-en (24)
      S4FQ-01-002-en (24)
      S4FQ-01-003-en (24)
      S4FQ-01-004-en (24)
    S4FQ-es
      S4FQ-02-es
        S4FQ-02-001-es (24)
        S4FQ-02-002-es (24)
        S4FQ-02-003-es (24)
        S4FQ-02-004-es (24)
```

To make this differentiation more graphic, the names used to identify the mentioned structure follow the next logic:

- The identification for the language category:
  - S4F-<lang> (S4F-bg)
- o The identification for the EQF category:
  - S4F-<eqf>-<lang> (S4F-01-bg)
  - The identification for the questionnaire category:
    - S4F-<eqf>-<test number>-<lang> (S4F-01-001-bg)

Following image shows the aspect of the question Bank structure:



At the same time, every test is composed by 24 questions that evaluate different areas: Chemistry, Astronomy, Physics, Biology, Environment, Geology. Each area has 4 questions that ask for information about different topics.

This is the structure followed to identify the questions: The name of the question is formed as the name of the test

S4F-<eqf>-<test number>-<lang> (S4F-01-001-bg)

followed by

-<question number>+<area>-<topic>

For instance, this is the name of the first question for first EQF1 test in English, which is about Chemistry / Atomic structure:

S4F-01-001-en-01+CHE-ATO

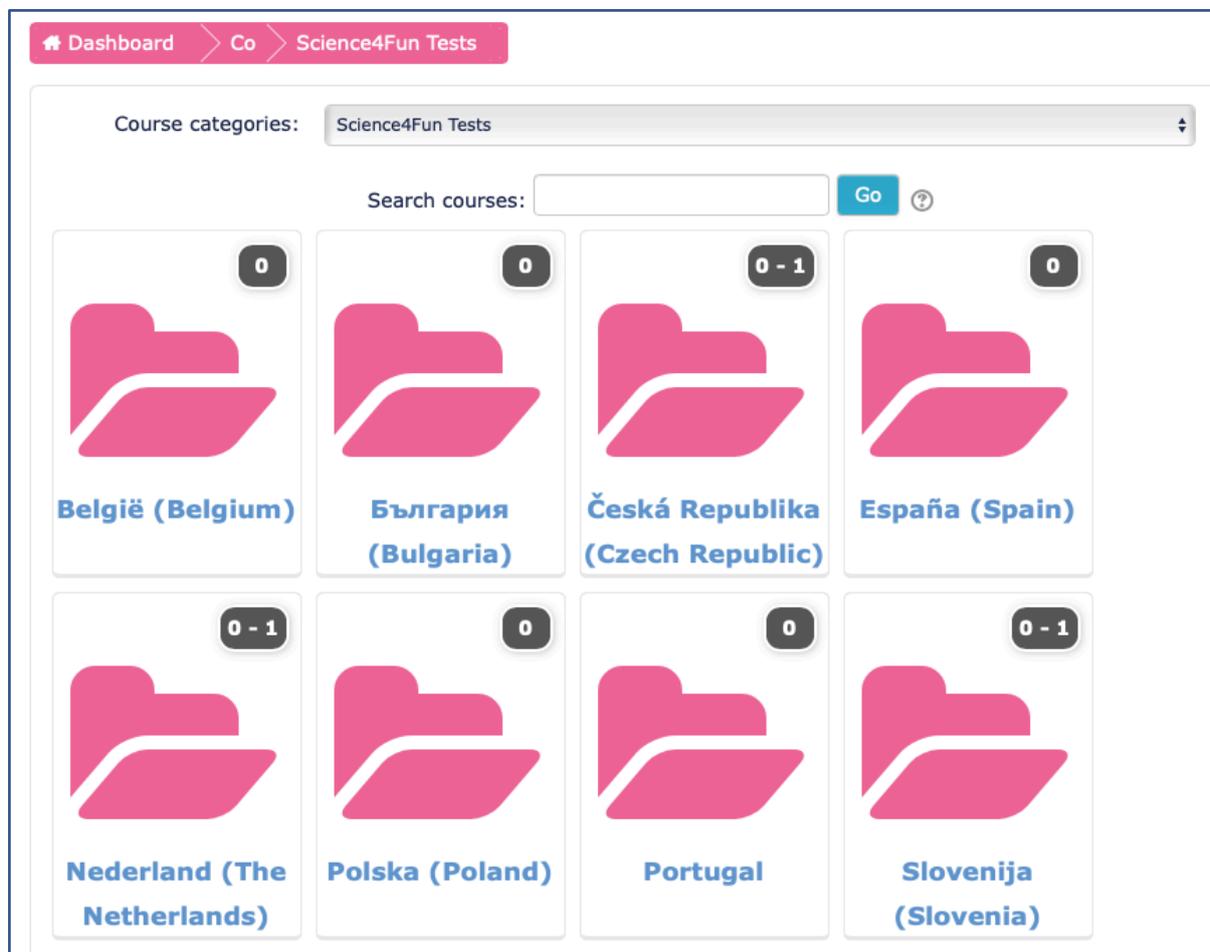
This convention helps to identify questions in the Question Bank structure.

This capture shows how first test's 24 questions appear on the Question Bank once they are uploaded.

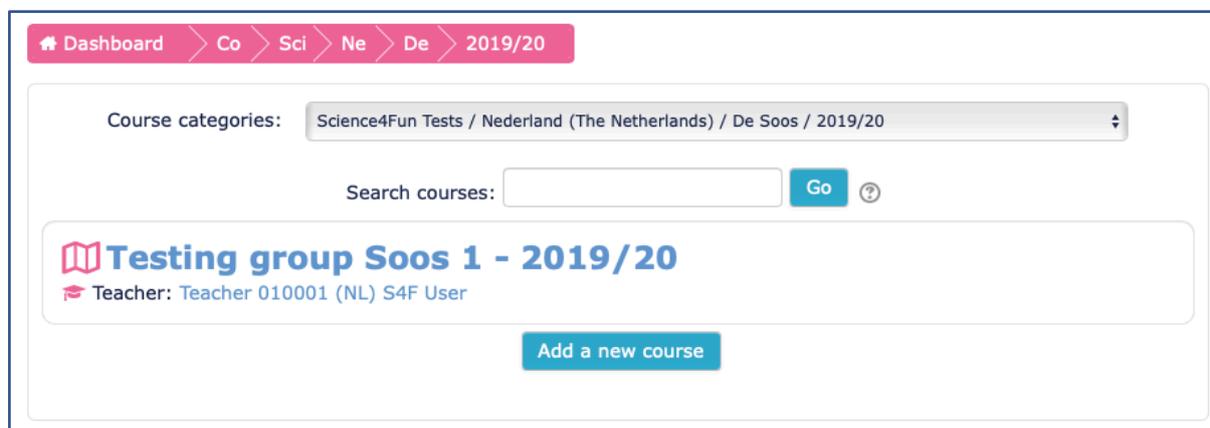
Question	Created by	Last modified by
	First name / Surname / Date	First name / Surname / Date
<input type="checkbox"/> S4FQ-01-001-bg-01+CHE-ATO	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>С какво свързвате химията?</b>		
<input type="checkbox"/> S4FQ-01-001-bg-02+CHE-STA	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Как се нарича водата, в която няма варовик?</b>		
<input type="checkbox"/> S4FQ-01-001-bg-03+CHE-CHE	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Какъв е процентът на кислорода във въздуха, който дишаме?</b>		
<input type="checkbox"/> S4FQ-01-001-bg-04+CHE-ORG	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>При каква температура започва да кипи водата?</b>		
<input type="checkbox"/> S4FQ-01-001-bg-05+AST-PLA	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Коя планета има пръстени?</b>		
<input type="checkbox"/> S4FQ-01-001-bg-06+AST-STA	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Можем ли да видим звезди, които повече не съществуват?</b>		
<input type="checkbox"/> S4FQ-01-001-bg-07+AST-SAT	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Може ли да видите сателити с невъоръжено око навън в тъмното?</b>		
<input type="checkbox"/> S4FQ-01-001-bg-08+AST-CEL	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Как се нарича галактиката, в която се намира Земята?</b>		
<input type="checkbox"/> S4FQ-01-001-bg-09+PHY-KIN	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Какво е кинетична енергия?</b>		
<input type="checkbox"/> S4FQ-01-001-bg-10+PHY-GRA	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Гравитацията на Земята по-силна ли е или по-слаба от тази на Луната?</b>		
<input type="checkbox"/> S4FQ-01-001-bg-11+PHY-MEC	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Камъкът пада по-бързо от перо.</b>		
<input type="checkbox"/> S4FQ-01-001-bg-12+PHY-ELE	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Магнитът има северен полюс и ...?</b>		
<input type="checkbox"/> S4FQ-01-001-bg-13+BIO-BOT	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Ботаническата градина е:</b>		
<input type="checkbox"/> S4FQ-01-001-bg-14+BIO-ZOO	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Кое е причина за летенето на ятата от птици във V - образна форма?</b>		
<input type="checkbox"/> S4FQ-01-001-bg-15+BIO-GEN	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Ако сте късоглед виждате:</b>		
<input type="checkbox"/> S4FQ-01-001-bg-16+BIO-CEL	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Защо хората стават по-ниски, когато остаряват:</b>		
<input type="checkbox"/> S4FQ-01-001-bg-17+ENV-REC	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Как се отделя металът от отпадците:</b>		
<input type="checkbox"/> S4FQ-01-001-bg-18+ENV-CLI	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Какво е глобалното затопляне:</b>		
<input type="checkbox"/> S4FQ-01-001-bg-19+ENV-ENE	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Кои от уредите вкъщи използват най-много електроенергия за един час работа:</b>		
<input type="checkbox"/> S4FQ-01-001-bg-20+ENV-POL	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Замърсяването на въздуха само от прахови частици ли е:</b>		
<input type="checkbox"/> S4FQ-01-001-bg-21+GEO-EAR	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Защо има повече кратери на Луната от колкото на Земята:</b>		
<input type="checkbox"/> S4FQ-01-001-bg-22+GEO-ROC	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Геологията наука за изучаване на Земята ли е:</b>		
<input type="checkbox"/> S4FQ-01-001-bg-23+GEO-ORO	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Защо понякога намираме вкаменелости от морски животни високо в планината:</b>		
<input type="checkbox"/> S4FQ-01-001-bg-24+GEO-HYD	Admin Science4Fun 5 June 2020, 9:18 PM	Admin Science4Fun 5 June 2020, 9:18 PM
<b>Каква е причината за ледниковите периоди:</b>		

### 3.2. Groups (Courses) and Tests (Quizzes)

The Moodle platform allows us to create different courses. In this case, a folder called Science4Fun Tests was created in order to compile all the different tests. Once we access this course, it can be observed that there is a specific folder for each of the partners' country.



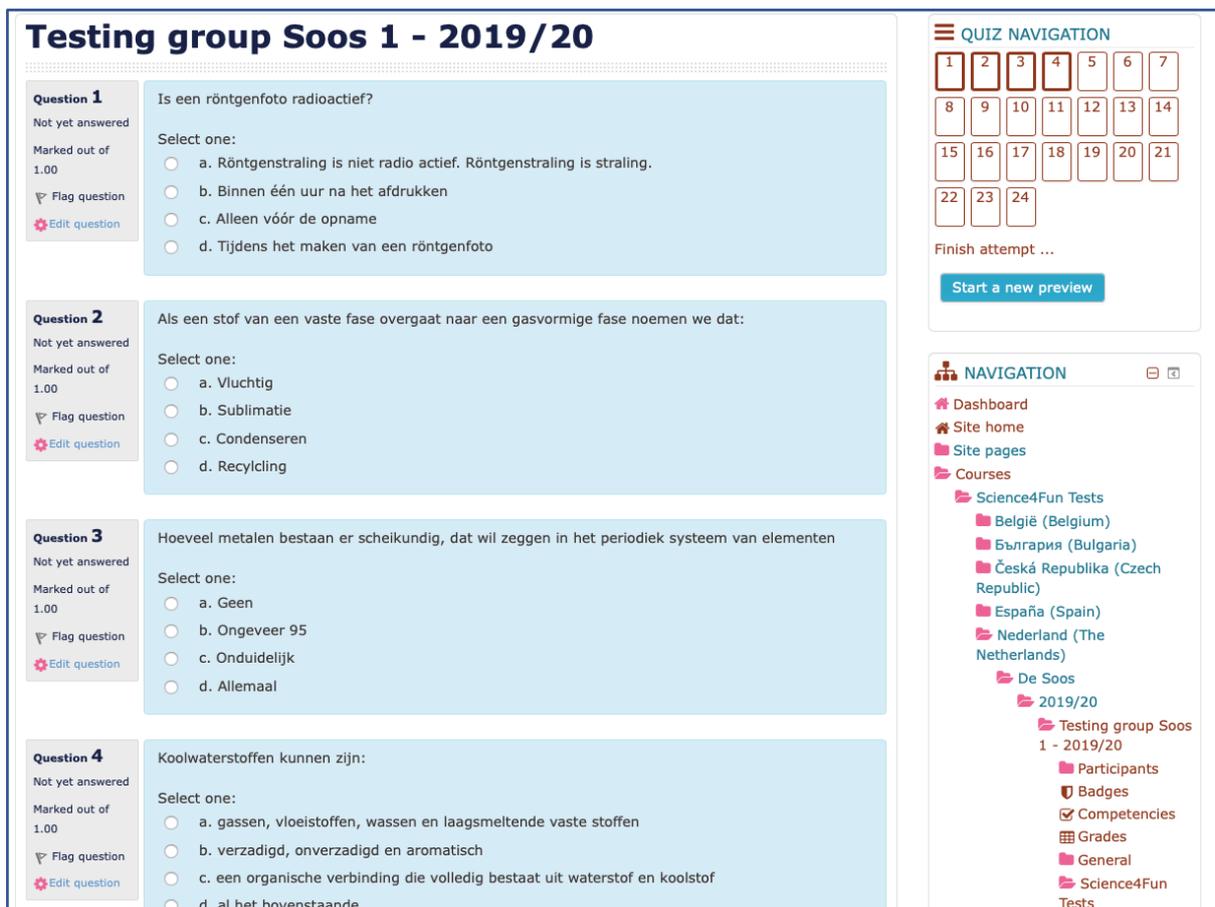
If we access one specific country, we will have the different schools and organizations. After choosing the desired one, we will have to choose the year. Finally, the different groups corresponding to these elements will be shown on screen. Each of these groups is implemented as a course. The name of the course is formed by the name of the group and the corresponding year.



As it can be seen in the picture, once we have selected the desired location, we will have access to the course, named after the name of the group and the corresponding year. Moreover, the name of the teacher responsible for the course can be also seen below.



Each of the courses, will have the typical Moodle structure, being it possible to have as many tests as needed. The name of each of the quizzes is assigned according to the corresponding EQF, the test number and the acronym of the language used in the test.



Each of the tests which had been created previously will have the same appearance. These tests are Moodle quizzes. They all are multiple choice questions, all of them having four different answers. The questions will be shown in groups of four and can be selected within the quiz navigation.

Teachers will have access to all Moodle functionalities and could check the list of participants, the participants' achievement, their answers, their grades and the attempts which have been made.

Following is the view of attempts with grades. Teacher can select to see also full details of grades per each of the 24 questions.

	First name / Surname	Email address	State	Started on	Completed	Time taken	Grade/10.00
<input checked="" type="checkbox"/>	 <b>Quinten 010023 (NL) Kambolat</b> Review attempt	s4f-student-010023-nl@science4fun.eu	Finished	5 August 2020 12:00 PM	5 August 2020 1:16 PM	1 hour 15 mins	<b>8.33</b>
<input type="checkbox"/>	 <b>Duncan 010022 (NL) Tak</b> Review attempt	s4f-student-010022-nl@science4fun.eu	Finished	5 August 2020 3:51 PM	5 August 2020 4:17 PM	25 mins 37 secs	<b>3.33</b>
<input checked="" type="checkbox"/>	 <b>Wesley 010019 (NL) de Glopper</b> Review attempt	s4f-student-010019-nl@science4fun.eu	Finished	11 September 2020 8:03 PM	11 September 2020 8:05 PM	1 min 36 secs	<b>2.50</b>
<input type="checkbox"/>	 <b>Oscar 010017 (NL) Aerts</b> Review attempt	s4f-student-010017-nl@science4fun.eu	Finished	11 September 2020 8:45 PM	11 September 2020 8:53 PM	7 mins 50 secs	<b>6.67</b>
<input checked="" type="checkbox"/>	 <b>Nick 010008 (NL) Fennet</b> Review attempt	s4f-student-010008-nl@science4fun.eu	Finished	11 September 2020 9:00 PM	11 September 2020 9:02 PM	1 min 30 secs	<b>3.33</b>
<input type="checkbox"/>	 <b>Geatan 010012 (NL) Das</b> Review attempt	s4f-student-010012-nl@science4fun.eu	Finished	11 September 2020 9:03 PM	11 September 2020 9:10 PM	6 mins 57 secs	<b>6.67</b>
<input checked="" type="checkbox"/>	 <b>Binck 010011 (NL) Raats</b> Review attempt	s4f-student-010011-nl@science4fun.eu	Finished	11 September 2020 9:12 PM	11 September 2020 9:14 PM	2 mins 6 secs	<b>5.83</b>
<input type="checkbox"/>	 <b>Micca 010015 (NL) Bouman</b> Review attempt	s4f-student-010015-nl@science4fun.eu	Finished	11 September 2020 9:17 PM	11 September 2020 9:20 PM	3 mins 8 secs	<b>5.00</b>
<input checked="" type="checkbox"/>	 <b>Daan 010005 (NL) Hogestein</b> Review attempt	s4f-student-010005-nl@science4fun.eu	Finished	11 September 2020 9:27 PM	11 September 2020 9:31 PM	4 mins 26 secs	<b>7.08</b>
<input type="checkbox"/>	 <b>Rik 010002 (NL) van Wijnen</b> Review attempt	s4f-student-010002-nl@science4fun.eu	Finished	11 September 2020 9:32 PM	11 September 2020 9:34 PM	1 min 58 secs	<b>6.25</b>
<input checked="" type="checkbox"/>	 <b>Bart 010004 (NL) van Steen</b> Review attempt	s4f-student-010004-nl@science4fun.eu	Finished	11 September 2020 9:36 PM	11 September 2020 9:44 PM	8 mins 3 secs	<b>5.42</b>
<b>Overall average</b>							<b>5.49 (11)</b>

As it can be seen in the following picture, we can also check the students' answers for each of the questions. It could allow teachers to have a deep understanding of their students' knowledge.

First name / Surname	Email address	State	Grade/10.00	Response 1	Response 2	Response 3	Response 4
 <b>Quinten 010023 (NL) Kambolat</b> Review attempt	s4f-student-010023-nl@science4fun.eu	Finished	<b>8.33</b>	✓ Röntgenstraling is niet radio actief. Röntgenstraling is straling.	✓ Sublimatie	✓ Ongeveer 95	✗ gassen, vloeistoffen, wassen en laagsmeltende vaste stoffen
 <b>Duncan 010022 (NL) Tak</b> Review attempt	s4f-student-010022-nl@science4fun.eu	Finished	<b>3.33</b>	✓ Röntgenstraling is niet radio actief. Röntgenstraling is straling.	✗ Vluchtig	✗ Geen	✗ gassen, vloeistoffen, wassen en laagsmeltende vaste stoffen

Also useful, the "Review attempt" functionality allows teachers to have a detailed view of each test finished by students.

### Testing group Soos 1 - 2019/20

 **Quinten 010023 (NL) Kambolat**

**Started on** Wednesday, 5 August 2020, 12:00 PM

**State** Finished

**Completed on** Wednesday, 5 August 2020, 1:16 PM

**Time taken** 1 hour 15 mins

**Marks** 20.00/24.00

**Grade** 8.33 out of 10.00 (83%)

**Question 1**  
Correct  
Mark 1.00 out of 1.00  
[Edit question](#)

Is een röntgenfoto radioactief?

Select one:

- a. Röntgenstraling is niet radio actief. Röntgenstraling is straling. ✓
- b. Binnen één uur na het afdrucken
- c. Alleen vóór de opname
- d. Tijdens het maken van een röntgenfoto

The correct answer is: Röntgenstraling is niet radio actief. Röntgenstraling is straling.

Make comment or override mark

**Response history**

Step	Time	Action	State	Marks
1	5/08/20, 12:00	Started	Not yet answered	
2	5/08/20, 13:11	Saved: Röntgenstraling is niet radio actief. Röntgenstraling is straling.	Answer saved	
3	5/08/20, 13:16	Attempt finished	Correct	1.00

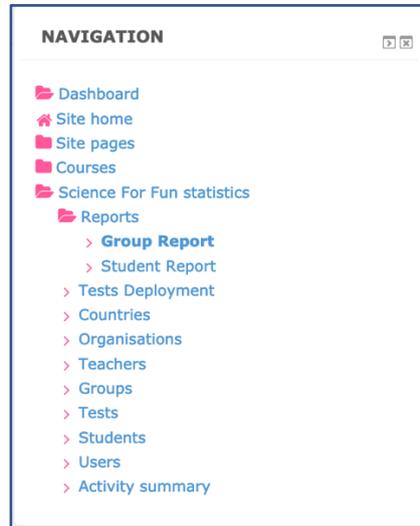
**QUIZ NAVIGATION**

1	2	3	4	5	6	7
✓	✓	✓	✗	✓	✗	✓
8	9	10	11	12	13	14
✓	✓	✓	✗	✓	✓	✓
15	16	17	18	19	20	21
✓	✓	✓	✓	✓	✓	✓
22	23	24				
✓	✓	✓				

Show one page at a time  
Finish review

### 3.3. Science4Fun Reports

S4F plugin adds to Moodle standard functionality a set of specific reports. Teachers and Organization responsible registered in the system can access to them via Navigation block and “**Science For Fun statistics**” menu:



S4F Moodle extension compiles in its database full information for S4F Test answers issued since project start up to the date. This information is then available for reports. Currently there are two available reports in the future it will be enhanced with new or reviewed reports.

For instance, **Group Report** shows details about all the tests answered by a given group students.

## Group Report

Report with all students selecting test group

**Select country:**

**Select organization in The Netherlands:**

**Select teacher in De Soos:**

**Select group from S4F User, Teacher 010001 (NL):**

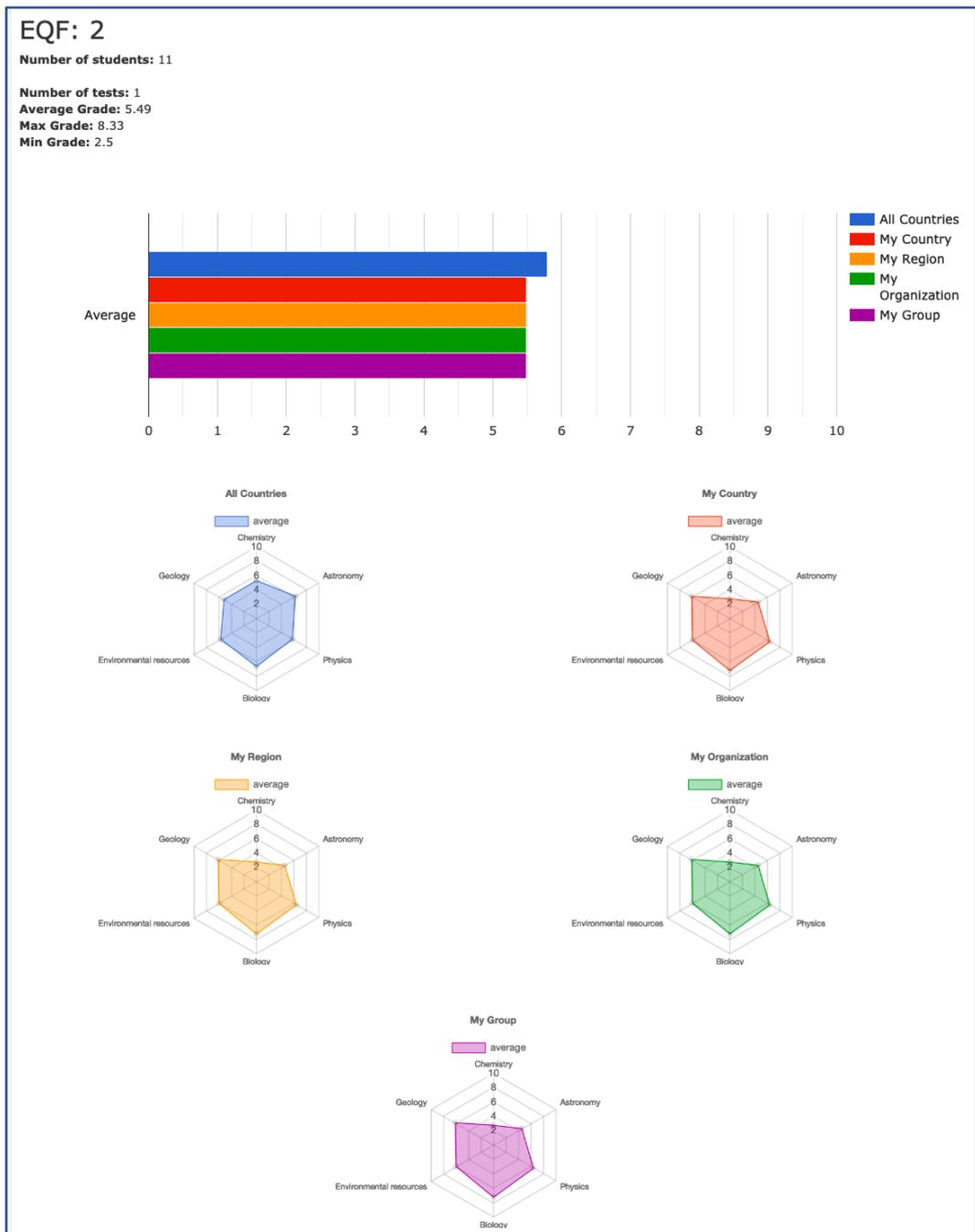
**Country:** The Netherlands  
**Region:** Zeeland  
**Organization:** De Soos  
**Group:** Testing group Soos 1 (2019)  
*Group ages (Mode): 14*

*Global Averages for the upper contexts (Organization, Region, Country and Global) are calculated for the same age range as the age Mode of this group.*

It gives a reference with results at upper levels:

- All Countries
- My Country
- My Region
- My Organization

In order to give a significative comparison it is made for similar student ages to this group. Also, results are shown in global and split by EQF level, in case a group have done tests of different EQF levels ...



... and Finally, detail data is showed in a **“Pivot Table”** format, similar to Microsoft Excel Dynamic Tables. Users can arrange different groupings and splits just by drag & drop field names to different areas of the table header.

**DATA DETAILS**

Sex EQF

Grade

Student Area Topic Total

<input type="checkbox"/> Aerts, Oscar 010017 (NL) (Student ID:17)	<input type="checkbox"/> Astronomy	Celestial movement	10.00
		Planets	10.00
		Satellites	10.00
		Stars	0.00
		Total	7.50
	<input type="checkbox"/> Biology		10.00
	<input type="checkbox"/> Chemistry		5.00
	<input type="checkbox"/> Environmental resources		5.00
	<input type="checkbox"/> Geology		5.00
	<input type="checkbox"/> Physics		7.50
	Total		6.67
<input type="checkbox"/> Bouman, Micca 010015 (NL) (Student ID:15)			5.00
<input type="checkbox"/> Das, Geatan 010012 (NL) (Student ID:12)			6.67
<input type="checkbox"/> Fennet, Nick 010008 (NL) (Student ID:8)			3.33
<input type="checkbox"/> Hogestein, Daan 010005 (NL) (Student ID:5)			7.08
<input type="checkbox"/> Kambolat, Quinten 010023 (NL) (Student ID:23)			8.33
<input type="checkbox"/> Raats, Binck 010011 (NL) (Student ID:11)			5.83
<input type="checkbox"/> Tak, Duncan 010022 (NL) (Student ID:22)			3.33
<input type="checkbox"/> de Glopper, Wesley 010019 (NL) (Student ID:19)			2.50
<input type="checkbox"/> van Steen, Bart 010004 (NL) (Student ID:4)			5.42
<input type="checkbox"/> van Wijnen, Rik 010002 (NL) (Student ID:2)			6.25
Total			5.49

## 4. Administration

Present section present administration functionality and a brief description of manual deployment procedure.

*In the following presentation and when necessary, no full explanation of Moodle actions will be presented but only a brief indication of task to be done on standard Moodle interface.*

### 4.1. Web Admin interface

Science For Fun statistics menu in Moodle Navigation block, offers three kind of functions:

- **Reports** – Entry point for users to the reporting functionality
- **Tests Deployment** – Supports the flow for requesting new tests to be deployed on existing groups. It also gives a recording of existing Tests and deployment dates.
- The rest of the options compound what could be named as Web admin interface and allows to manage S4F Data Moodle Objects. In this section we will describe this set of options.

A user can access different options depending on its assigned S4F role, being S4F Super Admin. the most powerful profile.

#### 4.1.1. Countries

This option shows registered Countries in the system. It allows to list, edit, delete and add a new participant country if it is eventually necessary.

Code	Country	Country national language	Edit
BE	Belgium	België	🗑️ ⚙️
BG	Bulgaria	България	🗑️ ⚙️
CZ	Czech Republic	Česká Republika	🗑️ ⚙️
ES	Spain	España	🗑️ ⚙️
NL	The Netherlands	Nederland	🗑️ ⚙️
PL	Poland	Polska	🗑️ ⚙️
PT	Portugal	Portugal	🗑️ ⚙️
SI	Slovenia	Slovenija	🗑️ ⚙️

[New country](#)

*“Edit” column and “New ...” button are only available if user has write permissions. Edit column icons allow to delete or edit same line record. Field labels in table header are active and allow to sort the list on selected column.*

*All different object types lists in this section have the same web page structure.*

*Also in all the tables, the first column shows a record ‘code’ or ‘id’. In current S4F version you may need to use this record ‘id’ to make references between objects.*

A Country is identified by its ISO 2-character code and includes country name in English and in main/selected National Language.

### Countries: New country

**Code** !

**Stringcode** !

**Country** !

**Country national language** !

There are required fields in this form marked !

Field **stringcode** is intended to link with Moodle multi-language system. In current version this has not been fully implemented so you can put any unique string for a new country and do not modify preconfigured ones.

#### 4.1.2. Organisations

We define Organizations to represent schools or other institutions participating. An organization belongs to a Country and has Teachers, Students.

Organisations ( 24 )												
Id. <span style="color: red;">^</span>	Country	City	Region	Name	Acronym	Type of center	Address	Contact Person	Contact Email	Contact Phone	Website	Edit
000002	BG			NTC	OS4F	[1]						
000003	CZ	Otrokovice	Zlín	MAXIMUM, jazyková agentura	OS4F	[1]	nám. 3. května 1791, Otrokovice	Lucie Rose	rose@euro-face.cz	420777832792	www.euro-face.cz	
000004	ES	Madrid	Madrid	Fundación Siglo22	OS4F	[1]	Calle de Raimundo Fernández Villaverde, 1, 28003 Madrid	Gema de Pablo	fs22@siglo22.net	(34) 917 87 38 98	https://fundacionsiglo22.org/	

This record has only general informative fields. Country is represented by its 'code'.

### Organisations: New organization

**Country** !

**City**

**Region**

**Name** !

**Acronym** !

**Type of center** !

**Address**

**Contact Person**

**Contact Email**

**Contact Phone**

**Website**

There are required fields in this form marked !

'Type of center' field is an enumerated. Allowed values are:

Undefined	1
Special Education	2
University	3
Adult Education	4
Further Education (+16)	5
Vocational Training	6
VET School	7
Secondary / High School	8
Primary Education	9

### 4.1.3. Teachers

A Teacher is a S4F **User** belonging to an **Organization**.

**Teachers ( 60 )**

1 2 3 4 »

Id. ^	Teacher	Organisation	Edit
000001	Teacher 010001 (NL) S4F User	[NL] De Soos	
000002	Vesna 010001 (SI) Elsner	[SI] PUM-O (LUV)	
000003	Sylva Chybova	[CZ] MAXIMUM, jazyková agentura	
000004	Teacher 040001 (ES) S4F User	[ES] Fundación Siglo22	
000005	Teacher 040002 (ES) S4F User	[ES] Fundación Siglo22	

To define a Teacher, you only need to use the S4F User Id (From table **Users** in this section) and the Organization Id (From table **Organizations**).

**Teachers: New teacher**

**User ID** !

**Organisation ID** !

There are required fields in this form marked !

#### 4.1.4. Groups

A S4F **Group** belongs to an **Organization** and is owned by a **Teacher**.

**Groups ( 95 )**

1 2 3 4 5 6 7 »

Id. ^	Organisation	Teacher	School Year	Group	Out of target	Edit
000001	[NL] De Soos	Teacher 010001 (NL) S4F User	2019	Testing group Soos 1	--	
000002	[SI] PUM-O (LUV)	Vesna 010001 (SI) Elsner	2019	testing group PUMO	--	
000003	[CZ] MAXIMUM, jazyková agentura	Sylva Chybova	2020	testing group Maximum	--	
000004	[ES] Fundación Siglo22	Teacher 040001 (ES) S4F User	2020	Grupo Nivel EQF1	--	
000005	[ES] Fundación Siglo22	Teacher 040002 (ES) S4F User	2020	Grupo Nivel EQF2	--	

To define a Group, we give it a **name** and we link it to a **specific school** year. We use the initial year of the academic course. For instance, **2020** stands for 2020-2021 school year.

**Groups: New group**

Teacher ID

Organisation ID

Name

School Year

Out of target

There are required fields in this form marked

Again, you need to use the Organization ID and the Teacher ID from respective tables.

Field '**Out of Target**' allows to mark a group where participating students does not match **Science 4 Fun** project target group, for instance, if we implement a group in an University.

#### 4.1.5. Tests

This option gives access to the list of deployed tests. A deployed test is a copy of one of the S4F Test Models. A test is made available into a group, so group students can answer to it. In Moodle, as presented in a previous section, it is implemented in a Moodle course as a Moodle quiz.

Test list shows the Organization and Group, as well as the Test Model. Besides it provides a link to the Moodle course and quiz so the table is also useful to navigate to deployed tests in the system.

**Tests ( 112 )**

1 2 3 4 5 6 7 8 »

Id. ^	Organisation	Group	Test Model	Moodle Course	Moodle Quiz	Edit
000001	[NL] De Soos	[1] Testing group Soos 1	S4FQ-02-001-nl	[NL_Org5_G1_2019] Testing group Soos 1 - 2019/20	EQF 2 - Test 1 (nl)	
000002	[SI] PUM-O (LUV)	[2] testing group PUMO	S4FQ-01-001-sl	[SI_Org8_G2_2019] testing group PUMO - 2019/20	EQF 1 - Test 1 (sl)	
000003	[SI] PUM-O (LUV)	[2] testing group PUMO	S4FQ-02-001-sl	[SI_Org8_G2_2019] testing group PUMO - 2019/20	EQF 2 - Test 1 (sl)	

Next capture shows the Deployed Test form used to register deployed tests. It allows you to select Test Model and Group from a dropdown selector.

However, Moodle Course and Quiz need to be identified by its Moodle internal ID.

*This form should be enhanced in this aspect so it would not be necessary to get those Moodle internal IDs. Follow next indications to get the Moodle internal IDs.*

*Moodle course ID: browse to your course main page and look to the URL. Take the numeric value in 'id=' variable.*

*`http://yourwebserver.com/course/view.php?id=<moodle-course-id>`*

*Moodle Quiz ID: you need access to the database management utility to issue a SQL query on it.*

*Execute the query:*

*`SELECT id, name FROM `mdl_quiz` where course = <moodle-course-id>`*

*'mdl\_' is the default table name prefix.*

*Use the one you selected in your Moodle installation.*

*The result will be the list of tests in the same course:*

id	name
1	EQF 2 - Test 1 (es)
2	EQF 1 - Test 1 (es)

*Identify your test from its name and column 'id' is the required Moodle Quiz ID.*

#### 4.1.6. Students

Students are S4F **Users** with student role and belonging to an **Organization**. Besides, students have registered its sex and birth date so its age can be calculated.

Id. ^	Student	Organisation	Number in organisation	Gender	Age	Edit
000001	Brian 010001 (NL) van Houwelingen	[NL] De Soos		Male	15	🗑️ ⚙️
000002	Rik 010002 (NL) van Wijnen	[NL] De Soos		Male	15	🗑️ ⚙️
000003	Jordy 010003 (NL) de Vries	[NL] De Soos		Male	15	🗑️ ⚙️
000004	Bart 010004 (NL) van Steen	[NL] De Soos		Male	15	🗑️ ⚙️
000005	Daan 010005 (NL) Hogestein	[NL] De Soos		Male	15	🗑️ ⚙️

Field **'Number in organization'** is optional and gives a student an identification of some kind used by its organization. It is only known by the organization and/or the teacher and is intended to link anonymous student accounts with real school students

The enumeration for field **'Gender'** is:

Female	1
Male	2

Finally, field **'Birth date'** in this form has to be the UNIX TIMESTAMP for the birth date. Following link can be used for the conversion:

[https://www.onlineconversion.com/unix\\_time.htm](https://www.onlineconversion.com/unix_time.htm)

#### 4.1.7. Users

A S4F **User** is a Moodle account with a S4F role assigned. These role assignments are shown in **Users** table.

Id. ^	Role	Moodle User	Edit
000001	S4F Super administrator	Admin Science4Fun	
000002	S4F Teacher	Teacher 010001 (NL) S4F User	
000003	S4F Country administrator	Tessa den Bakker	

Following capture shows User form used to add or edit a S4F User. In general, you need to fill in fields **'Role ID'** and **'Moodle User ID'**.

**'Country ID'** only need to me provided for Country administrator role and **'Organization ID'** only for Organization administrator role.

Again in this from, S4F object's and Moodle's internal numeric identifiers have to be used.

Use this enumeration for S4F Roles. Second column is 'Role ID' field:

S4F Super administrator	1
S4F Country administrator	2
S4F Organization administrator	3
S4F Teacher	4
S4F Student	5
S4F Supervisor	6

Moodle User ID: in your Moodle browse to the profile of the selected user. You can find it by clicking in the user's name in many places in Moodle, as for instance from

[... Site administration > Users > Accounts > Browse List of users](#)

The URL looks like this:

`http://yourwebservice.com/user/profile.php?id=<moodle-user-id>`

Take the numeric value in 'id=' variable.

Country ID: Use the 2-character ISO country codes, the same as in Countries table.

Organization ID: use the numeric ID from Organizations table.

**Important to remember!**

In S4F System a given Moodle account can only be assigned a single S4F role.

#### 4.1.8. Activity summary

This is a housekeeping information page showing some figures about quantities of different objects and the number of Base Line Tests answers, all per country and Total.

Activity summary (total)						
Country	Organizations	Groups	Teachers	Students	Tests	Answers
BE	6	18	18	324	18	1
BG	1	4	3	91	4	91
CZ	4	19	4	345	19	246
ES	4	18	11	379	34	777
NL	2	3	2	52	3	11
PL	4	19	16	171	19	0
PT	0	0	0	0	0	0
SI	3	14	3	264	15	130
Total	24	95	57	1626	112	1256

It also shows number of accounts with different roles in S4F, also per country and total

Country	Super Admin.	Supervisor	Country Admin.	Org. Admin.	Teacher	Student	Total Users
--	3	1	0	0	0	0	4
BE	0	0	2	0	18	324	344
BG	0	0	1	0	3	91	95
CZ	0	0	1	0	4	345	350
ES	0	0	1	1	12	380	394
NL	0	0	1	1	2	52	56
PL	0	0	1	2	18	171	192
PT	0	0	1	0	0	0	1
SI	0	0	2	0	3	264	269
Total	3	1	10	4	60	1627	1705

## 4.2. Backoffice administration

### 4.2.1. Test deployment flow

This procedure has been designed as a flow that allows S4F users to request the deployment of a given Test Model into an existing group. The system provides a Request form and a follow-up table so the requester can be informed when deployed Test is ready to be used.

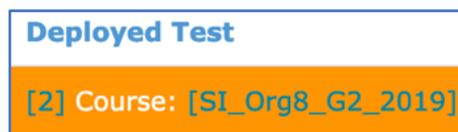
The entry point to this tool is also in S4F menu:

... [Science For Fun statistics > Tests Deployment](#)

First view is the 'Test deployment requests' list showing:

- Requester
- Status of the request (Wait, Process, Deployed, Locked)
- Requested Test Model
- Requested Deployment Group

Besides, for already available tests, column 'Deployed Test' is shown with links to the related Moodle Quiz and the enclosing Moodle Course:



In this example the [2] is a link to Moodle Quiz related to S4F Test ID 2, and [SI\_Org8\_G2\_2019] is a link to enclosing Moodle Course.

*Shown string for the Course link is Moodle short name of the course. The system does not force any given structure for this short name except it has to be unique in the system. In S4F project installation we propose the use of a Moodle Course for a Given group but S4F Data Moodle is not so strict allowing the same group to have tests in different Moodle courses. In addition to that, we propose a convention for course short names as in the previous example, using Country code (SI-Slovenia), Organization Id (8), Group Id (2) and Group school year (2019). This short name is assigned at course creation time.*

From this 'Test deployment requests' list, by using button "New request" a new request can be issued using this form:

### Test deployment requests: New deployment request

**Test Model** !

**Group Name** !

There are required fields in this form marked !

New request are shown in the list with “Wait” Status. Further progress of the request will be show in the table view

### Test deployment requests ( 113 )

Id.	Requester	Status	Test Model	Group	Deployed Test	Created	Last Modified <sup>▲</sup>	Edit
000106	Daniel Perez Ovejero	Deployed	S4FQ-02-001-es	[25][89] ESO4	[106] Course: [ES_Org25_G89_2020]	5-03-21 13:14:18	41 days 21 hours	
000107	Daniel Perez Ovejero	Deployed	S4FQ-01-001-es	[4][90] 5º Primaria	[107] Course: [ES_Org4_G90_2020]	23-03-21 11:09:59	23 days 23 hours	
000108	Daniel Perez Ovejero	Deployed	S4FQ-02-001-es	[25][91] 3ºB ESO	[108] Course: [ES_Org25_G91_2020]	23-03-21 12:09:07	23 days 22 hours	
000109	Dylan Adelaar	Deployed	S4FQ-01-002-nl	[26][92] Bovenbouw 1 - Groep 7	[109] Course: [NL_Org26_G92_2020]	9-04-21 13:59:50	6 days 20 hours	
000110	Dylan Adelaar	Deployed	S4FQ-01-003-nl	[26][93] Bovenbouw 1 - Groep 8	[110] Course: [NL_Org26_G93_2020]	9-04-21 14:00:22	6 days 20 hours	
000111	Lucie Rose	Deployed	S4FQ-01-002-es	[11][94] Group G	[111] Course: [CZ_Org11_G94_2020]	15-04-21 11:14:47	1 day	
000112	Lucie Rose	Deployed	S4FQ-01-002-es	[11][95] Group H	[112] Course: [CZ_Org11_G95_2020]	15-04-21 11:15:48	1 day	
000113	Admin Science4Fun	Process	S4FQ-01-001-nl	[5][1] Testing group Soos 1	--	16-04-21 12:27:30	17 secs	

S4F Admins would be able to edit a request in order to change its status and finally assigning the newly deployed Test Id.

### Test deployment requests: Edit deployment request

**Test Model** !

**Group Name** !

**Status** ! 

- Wait
- ✓ Process
- Deployed
- Locked

**Test ID**

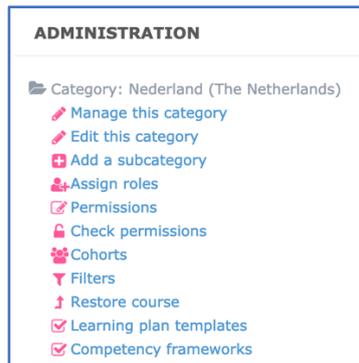
There are required fields in this form marked !

At current status **only** S4F Super administrator can make requests. An administrator can register requests as it receives them from S4F users. The use of this registration is anyway suggested as far it provides a follow-up record of tests deployment.

**Procedure for manual test deployment by a Moodle and S4F administrator is as follows:**

*Create a Moodle course for the Group (if it does not exist yet)*

- Identify Country and Organization to which related Group/Teacher belongs. Take a note with Country Code, Organization Id, Group Id and Group school year.
- Browse to right Moodle course category for your Country, Organization and school year, following the structure presented in section **3.2 Groups (Courses) and Tests (Quizzes)**. In order to create a new category in Moodle browse to its parent category and you will find in category administration menu the option: **“Add a subcategory”**. You will only be required to enter a category name.



- Create a new Moodle course (button **“Add a new course”** form the category page). You only need to enter course full name and short name. Put just some temporal easy text:

A screenshot of the 'Add a new course' form in Moodle. The form has a 'General' section with three fields: 'Course full name' with the value 'x', 'Course short name' with the value 'x', and 'Course category' with a dropdown menu showing 'Science4Fun Tests / Nederland (The Netherlands)'.

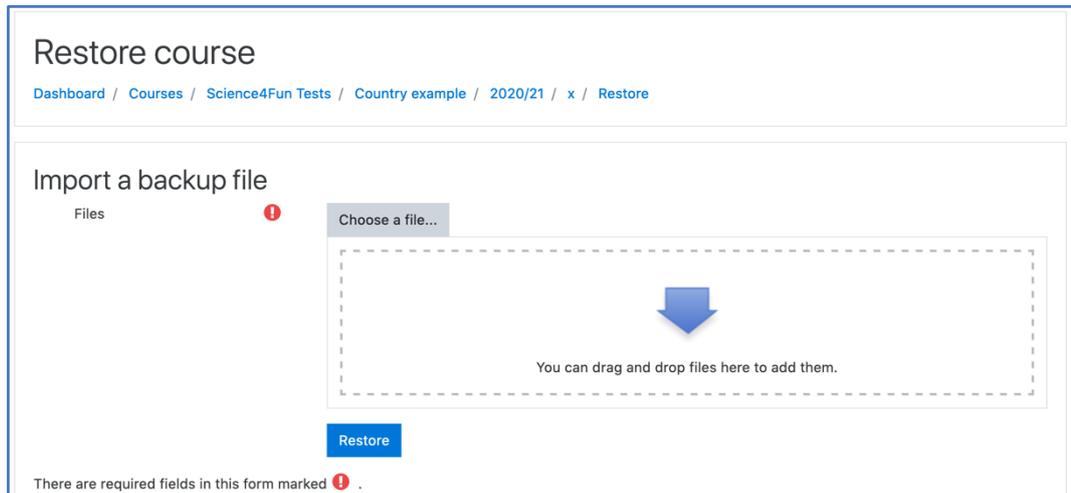
Be sure it is being created in the right category and save the form.

- Enter the new course and take note of its Moodle internal course id from the URL.

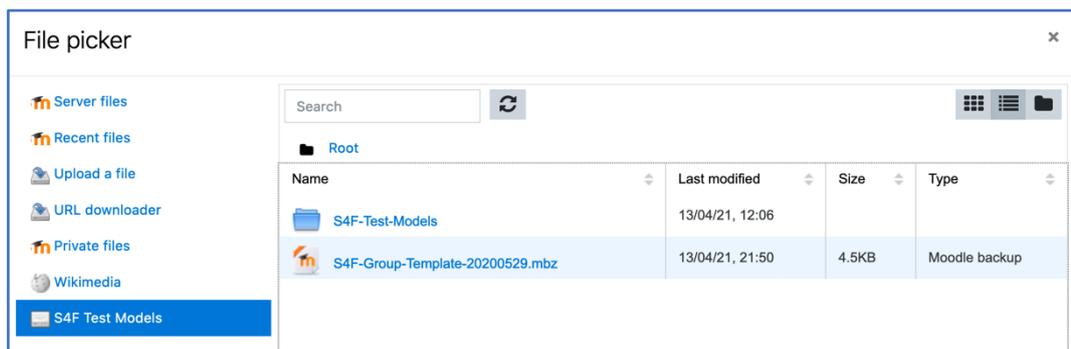


In this example, Moodle course Id is **3**.

- From course administration menu select **“Restore”** option and in restore screen click **“Choose a file ...”**

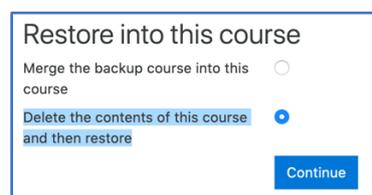


... you will be in the **“File picker”**, Select **S4F-Group-Template-XXXXXXX.mbz** file from **“S4F Test Models”** repository



... and click **“Restore”** button. The restore process has several steps:

- Step 1 Confirm. Just review selected backup file and continue
- Step 2 Destination. In section **“Restore into this course”** select **“Delete the contents of this course and then restore”** and continue



- Step 3 Settings. Defaults are good, just click Next

- Step 4 Schema. We need to overwrite some course settings, so we select “Yes” for “**Overwrite course configuration**” ...

Course settings

Overwrite course configuration  Yes

Course name  Overwrite [Group Name] - [YYYY]/[Y]

Course short name  Overwrite CC\_OrgN\_GK\_YYYY

Course start date  Overwrite 17 April 2021 00:00

Keep current roles and enrolments  No

Keep current groups and groupings  No

... check off “**Overwrite**” for “**Course start date**” and complete Course name and course short name following proposed format and using the information you have: Group Name, School year (YYYY), Country code (CC), Organization Id (N) and Group Id (K) ... and click “**Next**” again

- Step 5 Review. Just review entered information is correct and “**Perform restore**”.
- Step 6 Process. Will show a progress screen and ...
- Step 7 Complete.

1. Confirm ▶ 2. Destination ▶ 3. Settings ▶ 4. Schema ▶ 5. Review ▶ 6. Process ▶ 7. Complete

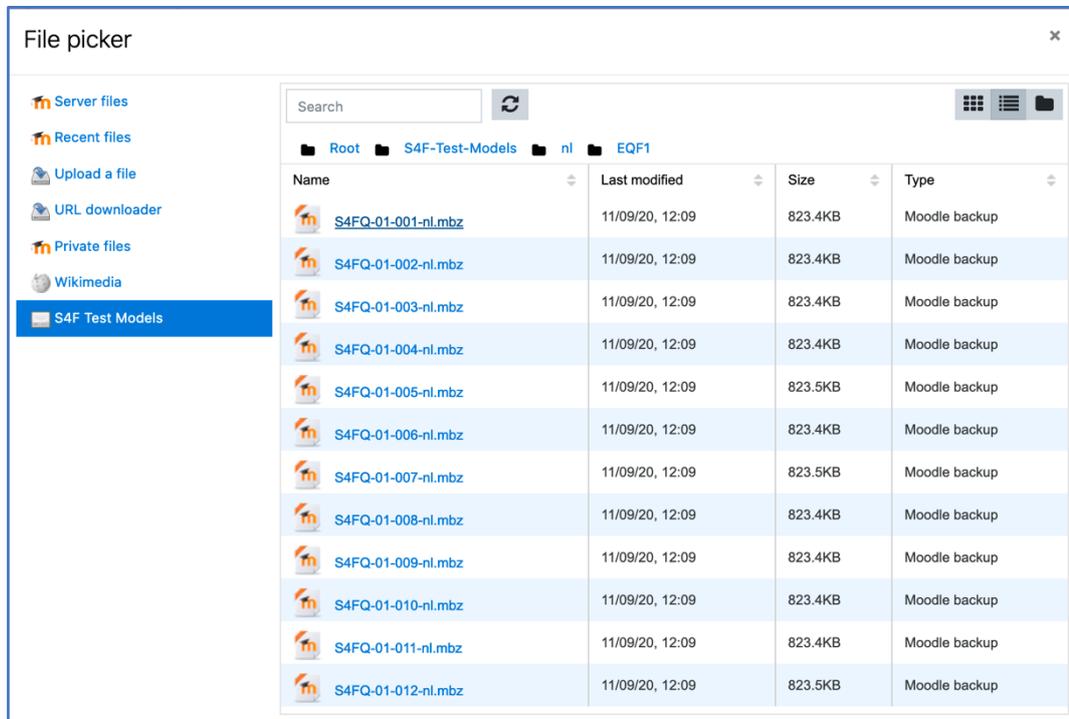
The course was restored successfully, clicking the continue button below will take you to view the course you restored. x

Continue

... you will be in your new course main page.

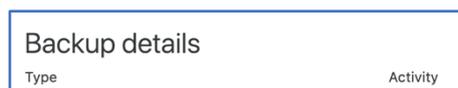
*Install a copy of required Test Model*

- Select **“Restore”** option from your course administration menu and as shown previously and click on **“Choose a file”** to get the **“File Picker”**. Also from our **“S4F Test Models”** browse to the right language and EQF level folders so you can select the requested Test Model, as in following capture we select **SQFQ-01-001-nl.mbz** file ...

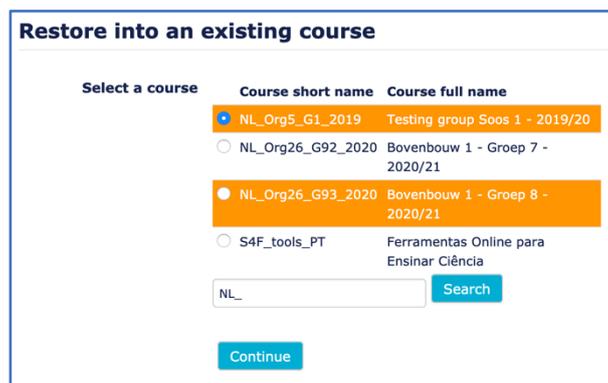


... as previously, click **“Restore”** button to start the restore process:

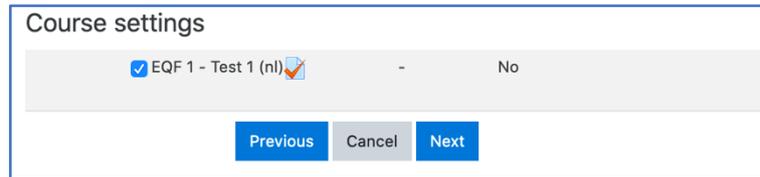
- Step 1 Confirm. In this case it is an **‘Activity’** type backup. Just review and continue



- Step 2 Destination. In this case only option is to **“Restore into an existing course”**, so we need to search and select destination course. Use your course short name in the search box and then select your course from the list, and continue

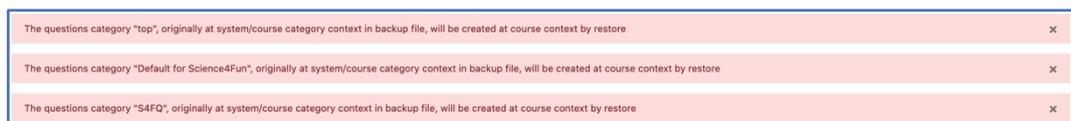


- Step 3 Settings. Defaults are good, just click “**Next**”
- Step 4 Schema. Only a Quiz activity is shown in the schema. One more opportunity to confirm you are working on the right Test Model.



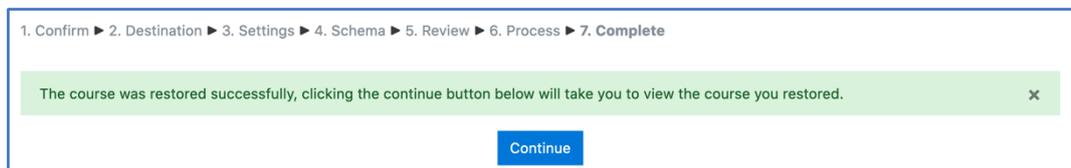
Defaults are good, just click “**Next**”

- Step 5 Review. Just review entered information is correct and “**Perform restore**”.
- Step 6 Process. In some situation you can see some warning messages related to questions categories:

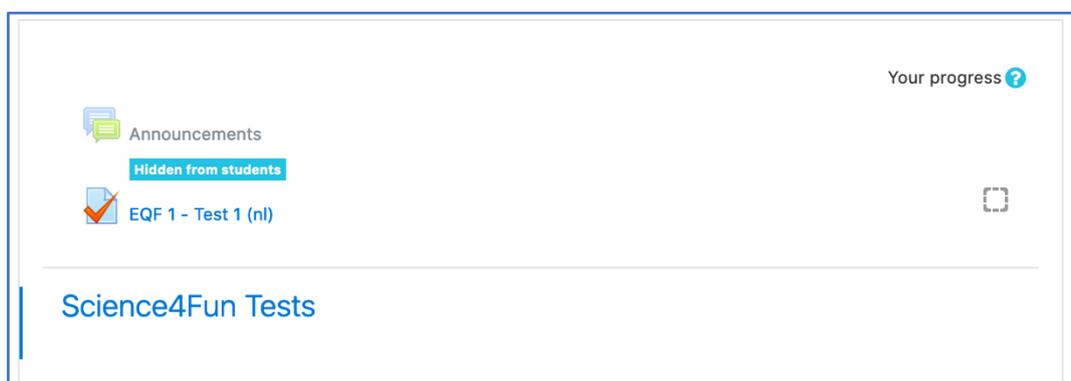


It is not a big problem, just continue and it will show the progress screen and ..

- Step 7 Complete.

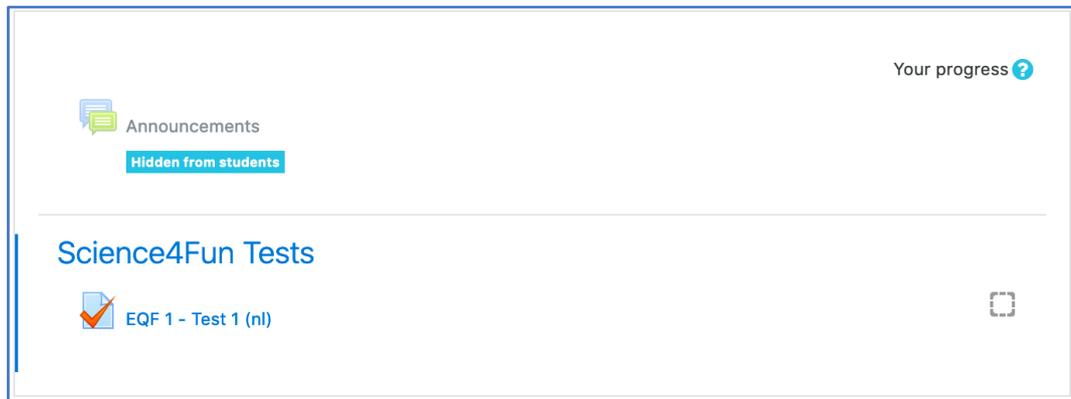


... you will be in your new course main page which will look like this:



Restored quizzes always will be creted on Section 0 of your course. The idea it to move all the tests into “**Science4Fun Tests**” section.

You can just turn editing mode on and move it. You can find a **“Turn editing on”** option in course administration menu. In editing mode you can just drag & drop the activity.



#### Register S4F Test

- Follow instructions in section **“4.1.5 Tests”** to get new Moodle quiz internal id and register the new S4F test. Remember you will also need your course id.
- After Test registration, locate it in the Tests table and take note of its numeric Id.

Id. ▲	Organisation	Group	Test Model	Moodle Course	Moodle Quiz	Edit
000001	[NL] De Soos	[1] Testing group Soos 1	S4FQ-02-001-nl	[NL_Org5_G1_2019] Testing group Soos 1 - 2019/20	EQF 2 - Test 1 (nl)	

#### Update request status in Test Deployment Request record

- Follow instructions in section **“4.2.1 Test deployment flow”** to update the request status to **“Deployed”** and register new S4F Test Id.

#### 4.2.2. Load Template – General Provisioning

It has been designed a semi-manual procedure that allows a controlled provision of Organisations, Groups, Teachers and Students. Original information is to be provided by Teachers or Organization administrators via project Partners and it is then deployed by an administrator.

The approach is to use this procedure to substitute in part full Delegated Web Administration functionality, not yet available, but this procedure will remain always useful for batch accounts creation.

It has been designed a Microsoft Excel Load Template for this task. It is available for download for project partners from **“Science4Fun Moodle Warehouse”** on S4F Moodle platform

<http://learning.science4fun.eu/course/view.php?id=69>

### Scien4Fun Organization Load Template

S4F-LoadTemplate-v1p2-CC-ORG-N.xlsx 72.5KB Excel 2007 spreadsheet Uploaded 15/04/21, 13:17 □

Science4Fun Load Template

Use this template to compile information from participating organizations in order administrators are be able to deploy an Organization and its Teachers, Groups, Students and Tests.

The most important part can be the list of teachers and students accounts to be create in the platform. The template assigns usernames and passwords and this part is designed to make easy batch accounts creation.

First Tab includes usage instructions.

Download file is **S4F-LoadTemplate-v1p2-CC-ORG-N.xlsx**

Load Template name should indicate the Country code (CC) and a serial number (N) assigned by the partner or Country administrator, different for each Organization in the country. In the case that an Organization already participating needs to add more Teachers, Groups, Students or Tests, the same Load Template keeping previous information in place, should be used and adding then new information; in this case, adding some control version mark to the file name.

Load Template tabs are:

- Instructions  
It Contains instructions for whom provides the information. Here after we will briefly describe actions to be performed by the administrator based on a received template.
- 1 – Country + Special Users  
It allows to identify the Country and (optional) information to create accounts for a Country administrator and an Organization Administrator.
- 2 – Organization  
Contains information about this Organization, it assigns a Number for the organization (a serial number for this Organization in the Country, the same as N in Load template file name); the combination of Country and N has to be unique in the system and it is used by the Load Template to generate accounts credentials and fake anonymous names and email addresses.  
For regular organizations (Schools, etc.) “**Use default Organization**” should be set to “**No**”. A default organization is reserved for each Country. It can be used to include participant not belonging to an official school. Project technical support should be contacted in order to enable this default organization.
- 3 – Teachers  
Contains credentials and information required for creating Moodle S4F Teachers accounts.
- 4 – Groups  
It allows to specify owner Teacher, Name and school year for this organization groups.
- 5 – Students  
Contains credentials and information required for creating Moodle S4F Student accounts. In this case sex and birth date fields are required.
- 6 – Groups-Students  
It allows to specify students’ membership to groups. It allows a student to belong to several groups.
- 7 – Deploy Tests  
Used to list Tests to be deployed into groups.
- Index / Test Models  
Auxiliar information useful to make the rest of the Excel workbook easy to use.

### General Provision procedure

- Use information in tab “**2 – Organization**” to create the Organization record using instructions in “**4.1.2 Organisations**”. Take note of new organization numeric ID.
- (optional) Use information in tab “**1 – Country + Special Users**” to create new accounts for special users.

- Create Moodle accounts for Country and Organization admins. Browse to

*... Site administration > Users > Accounts > Add a new user*

In this case, it is suggested to use email address both for username and email address. An initial password should be assigned and communicated to users. It is suggested mark “Force password change”. Take note of new Moodle users internal IDs.

- Assign S4F Roles: Use instructions in “**4.1.7 Users**” to assign S4F roles. Fill in Country code for Country admin user and Organization ID for Organization admin user.

It can be created any number of Country and Organization admin users for the same Country and Organization respectively.

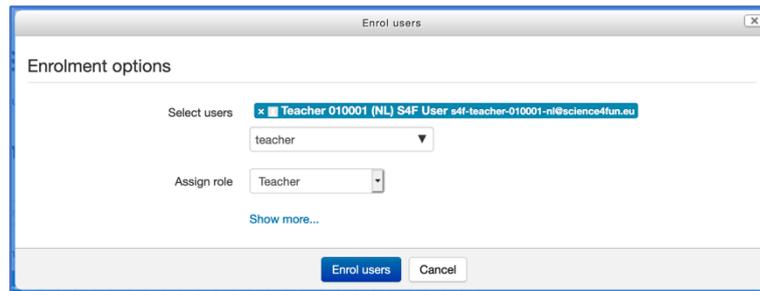
- Use information in tab “**3 – Teachers**” to create new Teachers accounts. The procedure to create a teacher account is similar:
  - Create new Moodle account. Use username and initial password credentials as generated by the Load Template. Set to force password change in first access.
  - Assign S4F teacher Role (“**4.1.7 Users**”)
  - Assign additional teacher information using instructions in “**4.1.3 Teachers**”. Take note of new teacher’s numeric identifier.

*See in next section some indications in order to perform batch accounts uploads for a high number of accounts.*

- Use information in tab “**4 – Groups**” to create new Groups. Use instructions in “**4.1.4 Groups**”. Take note of new Groups’ numeric identifiers.
- Use information in tab “**7 – Deploy Tests**” to create new tests.
  - Register each test listed to be deployed as in “**4.2.1 Test deployment flow**”. At this step put status to “**Process**” and keep “**Test ID**” field empty.
  - For each test listed in the Load Template, use the procedure presented in “**4.2.1 Test deployment flow**”, paragraph “**Procedure for manual test deployment ...**”.
  - Using proposed Moodle structure “**3.2 Groups (Courses) and Tests (Quizzes)**”, locate Moodle course related to each group and enrol owner teacher: From given Moodle course, browse to:

*... Course administration > Users > Enrolled users*

... and click button “**Enrol users**”



Select role **“Teacher”**, locate and select right owner teacher account and click **“Enrol users”**.

- Use information in tab **“5 – Students”** to create new Students accounts. The procedure to create a single student account is similar as for teacher accounts:
  - Create new Moodle account. Use username and initial password credentials as generated by the Load Template. Set to force password change in first access.
  - Assign S4F student Role, as in **“4.1.7 Users”**
  - Assign additional student information using instructions in **“4.1.6 Students”**. For students fields **“sex”** and **“birth date”** are mandatory. Take note of new student’s numeric identifier.

*See in next sections some indications in order to perform batch accounts creation for a high number of accounts.*

- Use information in tab **“6 – Groups-Students”** to register assignments of Students to Groups.
  - Register assignation: You need access to the database management utility to execute following query...

```
INSERT INTO `mdl_s4f_student_group` (`student_id`, `group_id`)  
VALUES ('<S4F student numeric id>', '<S4F group numeric id>');
```

Here, ‘mdl\_’ is the default table name prefix.  
Use the one you selected in your Moodle installation.

*See in next sections some indications in order to perform batch upload of Students-Groups assignations.*

- Enrol Group Students to its Groups related Moodle courses
  - In the same way as for Teachers, we can enrol each single Student account to a Moodle course related to one of this Student's Groups by using ...

[... Course administration > Users > Enrolled users](#)

... and then **“Enrol users”** form, selecting in this case **“Student”** role.

*See in next sections some indications in order to perform batch accounts enrolments for a high number of accounts.*

### Moodle batch Student accounts creation

Use information in tab “5 – Students” to create a **.CSV** file with following columns:

username	password	firstname	lastname	email

Complete it with all required student accounts form Load Template. **.CSV** file has to be UTF-8 encoded and select ‘,’ or ‘;’ as field separator; it is not needed to use field context escape between “”.

In your Moodle server browse to:

[... Site administration > Users > Accounts > Upload users](#)

Select your **.CSV** file and options and click “**Upload users**”. Next step, in upload preview page select following settings:

**Settings**

Upload type: Add new only, skip existing users

New user password: Field required in file

Existing user details: No changes

Existing user password: No changes

Force password change: All

Allow renames: No

Allow deletes: No

Allow suspending and activating of accounts: Yes

Standardise usernames: No

Select for bulk user actions: No

---

**Default values**

Email display: Hide my email address from non-privileged users

... after “**Upload users**” a results screen will be shown with details and possible errors.

Besides, for each account Moodle internal user id is shown:

Upload users results										
Status	CSV line	ID	Username	First name	Surname	Email address	Password	Authentication	Enrolments	Delete
New user	2	127	jonest	Tom	Jones	jonest@someplace.edu	verysecret	manual		
New user	3	128	reznort	Trent	Reznor	reznort@someplace.edu	somesecret	manual		

Users created: 2  
Users having a weak password: 0  
Errors: 0

You need to compile new accounts ids. Usually and if your system is not having many concurrent administration activities, Id will be assigned in a consecutive ascendent serial; this will make easier to take note of the Ids for a high number of users: just look at firsts and lasts Ids and match them with the total number of newly created accounts.

Full details for Moodle **'Upload users'** functionality can be found at:

[https://docs.moodle.org/36/en/Upload\\_users](https://docs.moodle.org/36/en/Upload_users)

This procedure can be used to create any kind of Moodle accounts; it is independent of S4F Roles or Moodle enrolments.

#### S4F User and Student registration

Next step for new Student accounts is to assign them S4F 'Student' role by registering linked S4F Users records. Again, we need to upload directly to the database, so we need to create a .CSV file with columns:

moodle_userid	role_id	s4f_node_id
	5	s4f_master

Put in column 'moodle\_userid' Moodle internal user ids compiled from previous step. Other two columns need to go with shown fixed values: 'role\_id' = 5 stand for student, in current versions 's4f\_node\_id' is not used but need to me fixed to 's4f\_master'.

Import it directly to our database server into table 'mdl\_s4f\_users'.

Column names for this import are: **moodle\_userid, role\_id, s4f\_node\_id**.

This can be different depending on your database admin tool. In PHPMyAdmin you can select table and use import functionality. Your .CSV should not have field names in first line and fields have to be declared in field "Column names:" separated by ',' and in the same order as in the .CSV file, as:

**field\_1, field\_2**

You need to take note of new S4F User IDs for the new students accounts. Usually, they will come in a consecutive serial. It can be easy if you identify them from Moodle at

... [Science For Fun statistics > Users](#)

..., taking IDs from S4F Users table shown in section “**4.1.7 Users**”.

Next and in the same way, we will upload S4F students’ specific information. We will use again information from tab “**5 – Students**” to create and import to the database the following **.CSV**:

user_id	org_id	org_idnumber	gender	bdate

Put in column ‘user\_id’ S4F User IDs compiled from previous step. For ‘org\_idnumber’ field use the string **NULL** if it is empty. For indications about correct values for ‘gender’ and ‘bdate’ fields, see “**4.1.6 Students**”.

Import it directly to our database server into table ‘mdl\_s4f\_students’.

Column names for this import are: **user\_id**, **org\_id**, **org\_idnumber**, **gender**, **bdate**.

Again, you need to take note of S4F Student IDs for new students accounts. Usually, they will come in a consecutive serial. It can be easy if you identify them from Moodle at

... [Science For Fun statistics > Students](#)

..., taking IDs from S4F Students table shown in section “**4.1.6 Students**”.

#### *Moodle batch accounts enrolment*

For batch enrolment in Moodle students to a Moodle course related to one of its group, we will use again Moodle “Upload users”...

... [Site administration > Users > Accounts > Upload users](#)

In this case we will use only ‘username’ field from tab “**5 – Students**” to make reference to recently created Moodle accounts. We will use following columns:

username	course1
s4f-student-010001-nl	NL_Org20_G5_2020

Column ‘course1’ will contain the **short name** of course on which given account will be enrolled. In the example we follow the convention suggested in “**Create a Moodle course for the Group (if it does not exist yet)**” page 50, section “**Procedure for manual test deployment by a Moodle and S4F administrator is as follows**”.

Again, **.CSV** file has to be UTF-8 encoded and select ‘,’ or ‘;’ as field separator; it is not needed to use field text escape between ‘”’.

In this case, in upload preview page select following settings:

▼ **Settings**

Upload type	Update existing users only
New user password	Field required in file
Existing user details	No changes
Existing user password	No changes
Force password change	None
Allow renames	No
Allow deletes	No
Allow suspending and activating of accounts	No
Standardise usernames	No
Select for bulk user actions	No

After click “**Upload users ...**”, no account will be created or changed but in following results screen, in column “**Enrolments**”, you will see a confirmation of the effective account enrolment. Besides, you can access the list of participants of the Moodle course in order to verify the operation...

Full details for Moodle ‘**Upload users**’ functionality can be found at:

[https://docs.moodle.org/36/en/Upload\\_users](https://docs.moodle.org/36/en/Upload_users)

### *S4F batch Students-Groups assignation*

Use information in tab “**6 – Groups-Students**”, and S4F numeric IDs for students and groups, to create a **.CSV** file with following columns:

student_id	group_id

In this case we need to upload directly to our database server into table ‘**mdl\_s4f\_student\_group**’.

Column names for this import are: **student\_id, group\_id**.

*In summary, in order to correctly register Students into the system we need to:*

- *Create Moodle Accounts*
- *Assign S4F role by creating S4F Users records*
- *Complete Student information by creating S4F Students records*
- *Enrol in Moodle Students Moodle accounts to right courses related to S4F Groups*
- *Assign S4F Students to S4F groups by uploading S4F student-group records*

## 5. Current status

### 5.1. Versions

Actual software versions for current platform are:

- Operating System: CentOS Linux 7.8.2003
- Platform version: Moodle 3.6.10 (Build: 20200511)
- Database server: MariaDB (5.5.5-10.2.33-MariaDB)
- Web server: Apache/2.4.6 (CentOS)
- PHP versión: 7.2.33

Details for Moodle Server and Database requirements can be found at:

[https://docs.moodle.org/dev/Moodle\\_3.6\\_release\\_notes#Server\\_requirements](https://docs.moodle.org/dev/Moodle_3.6_release_notes#Server_requirements)

- “Science4Fun statistics” Moodle extension, versión: 0.1.4 (2021040800)

Currently tested for Moodle 3.5.13+ and 3.6.10.

### 5.2. Current restrictions

At current status, the system development is ongoing, and it still has some restrictions/limitations:

- Moodle multilanguage system is supported but translations are not currently integrated.
- Only system Administrator is able to use in Read/Write Science4Fun extension administration menu. Rest of roles except Students is allowed to access in Read Only mode.

**RATIONALE** – *Current development status lacks security and strong access control to avoid mistakes that could be important for the integrity of the system. Future developments will enhance this matter and different roles will be enabled to perform some admin tasks.*

- Provision of Organizations, Groups, Teachers, Students and Tests is not completely available through Delegated Web Administration. Manual or semi-manual deployment procedures have been set-up and have to be performed by administrators. For this process an Excel Load Template has been developed. Partners can request deployments by filling in a copy of the Load Template for each participating Organization.
- Automatic deployment of Tests is not available. Test Deployment flow is however working but manual or semi-manual deployment is performed by administrators. Test Deployments list is being used to record each request and its deployment status.
- Currently 2 report models are available: Report 1 is a Group Report with advanced and dynamic characteristics. Report 2 is a Student Report allowing a view of a single student progress. More models will be added during next development phase.