



ARCHITECTURE, SYMBOLS AND BUILDINGS LEARNING UNIT

ERASMUS+ KA2 PROJECT
„GREAT ROUTES IN THE MIDDLE AGES AND THEIR
SYMBOLGY“



Co-funded by the
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Introduction

Middle Ages is a period full of symbolism. As many people was not able to write or read, stained glass windows, façades, statues, ... all the decorative elements in buildings tried to teach people about how they had to behave and how their life should be.

The art, and mainly the Christian art in the Middle Ages is, this way, full of symbolism, using vegetal decoration, numbers, animals, and even colours.

Even buildings, themselves, were covered with its symbolism. Middle Ages is the time of great cathedrals.

As big as possible. As tall as possible. Always trying to be closer to God.



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During this learning unit we will try to study four different topics, allowing us to learn about different subjects:

1. Decorative Elements
2. Routes and Symbols
3. Architectural Elements and Routes
4. 3D Recreation

With the proposed activities we will improve our knowledge about the Middle Ages.



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This Learning Unit was created during the Erasmus KA2 Project „Great Routes in the Middle Ages and their Symbology“, during the years 2016-2018 by six countries: France, Greece, Italy, Latvia, Poland and Spain. This project was co-funded by the Erasmus Programme of the European Union. The Schools taking part in the project were:

- Lycée Les Rimaains, Saint-Malo (France)
- 1st General Lyceum of Trikala (Greece)
- ITE Vitale Giordano, Bitonto (Italy)
- Jelvaqa 4.Vidusskola (Latvia)
- Zespół Szkół nr 5 im. Jana Pawła II, Jastrzębie-Zdrój (Poland)
- IES Emilio Jimeno, Calatayud (Spain)

This unit is the result of the work of all partners in a number of related activities.

It includes materials in different formats. Those in digital format are linked with the printed material by several ways:

- With QR codes, possible to read with any QR reader. We will find two types of QR codes in this Learning Units, as we can see in the following pictures:

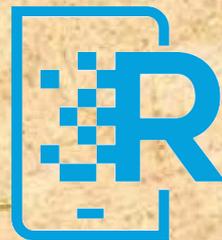


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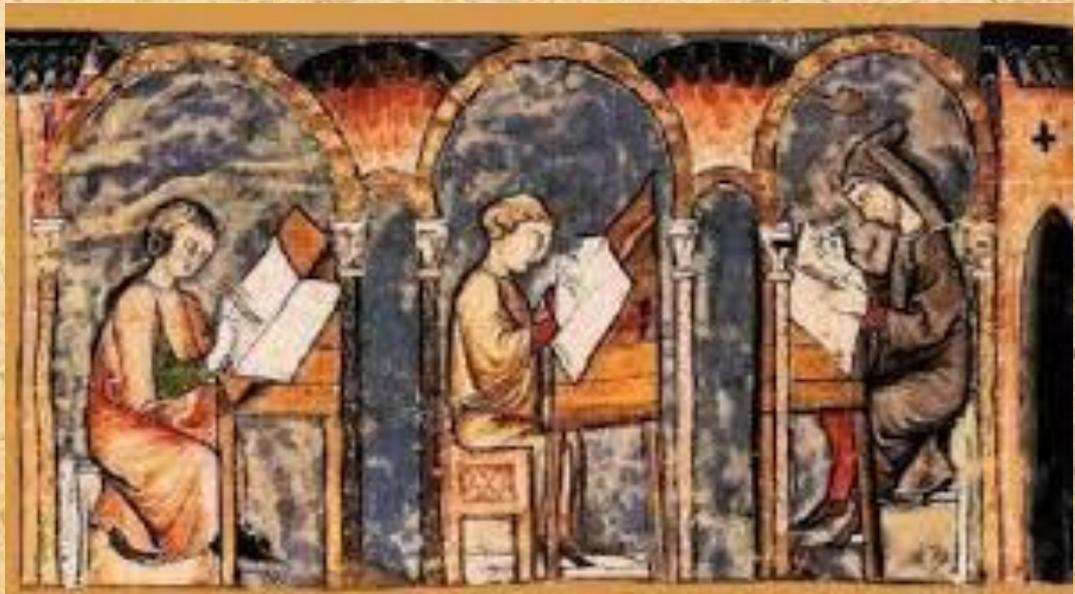


The one on the left refers to contents present in the web. The one on the right contains materials present in the web but created during the project.

- With short URL, possible to type if necessary producing less errors than usual URL.
- Augmented reality contents, which are linked to images containing the logo of HP Reveal, the app needed to access to them.



To be able to access to these contents, you have to follow the HP-Reveal account „greatmiddleroutes“



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Objectives

1. Evaluate the information gathered by students while they see a video, and their ability to search for information in the web and using bibliography.
2. Learn about the decoration of Medieval clothes and about the work in metals. Study of the main properties of Metals.
3. Study the reproduction of scriptures, and materials used to create ink and illumination.
4. Learn how to structure and write a letter in English.
5. Practise use of present simple to describe repetitive actions or habits. Master the use of simple present.
6. Master letter-writing skills.
7. Recreate and illuminate a design using original materials.
8. Paint accurately and respect an original design.
9. Create and augmented reality gallery on the life of monks and illumination.
10. Learn about the symbols present in buildings and in documents in the Middle Ages.
11. Learn about the History of Medieval churches and Cathedrals.



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12. Assess work done by groups and mutualise information.
13. Understand brief audio files about Cathedral building
14. Be able to construct oral productions about Cathedral building.
15. Define the objectives of a final task
16. Calculate dimensions required to create a scale model
17. Assimilate vocabulary related to Cathedral building in English
18. Talk about Cathedral building in English
19. Show that students can follow instructions
20. Be able to make use of their experience of using the software to create their own architectural elements in 3D.
21. Understand the impact of forces
22. Show that students can adapt their knowledge of Solidworks to a final task.



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Decorative Element

Even when Middle Ages are often considered to be a grey period, without any decoration or colour, it's not true. Clothes were dyed with vegetal elements, and many bright and beautiful colours were possible, even when brightest and more difficult to find were so expensive only rich people could afford them. People, so, were not dressed in ugly sackcloth.

People liked to decorate their clothes and if they could afford, they used brooches or other decorative elements to decorate their clothes.

And the same they liked to decorate their clothes, they tried to decorate their buildings and their literary productions.



In this activity we are going to learn about the decoration of different types of elements: clothes, texts and also buildings, we



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are going to learn different techniques and try to reproduce Medieval decorative elements.

And we will start by creating decorative elements for clothes. But, how these accessories were manufactured during the Middle Ages? Have a look at the following videos:



<https://goo.gl/x77fRP>



<https://goo.gl/L8fPsl>

In the video, we can see the process of Blacksmithing a Medieval Brooch.

1. Which is the material used?
2. Which property of metals make them suitable to shape?
3. Which magnitude measures the ease of shaping them?

As it's not possible to blacksmith a brooch at school, we are going to search for an easier approach. Have a look to the following video:



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<https://goo.gl/QwTxRw>

Use the video to make brooches like the one manufactured in it.

Find for information about other types of decoration used in the Medieval Clothes.

After speaking about the decoration of the clothes, we are going to continue decorating elements. And we will learn about decoration of texts as monks used to do in the Middle Ages.

To do that, we will start by studying the life of a Monk in the Middle Ages. To do that, we have to see the following video:



<https://goo.gl/b6YQdL>

1. Take notes while you see the video.
2. Divided in groups, each of the groups is specialized in one of the following topics:
 - a. The routine of a Monk at a Monastery.
 - b. Materials used to create ink
 - c. What was used before paper?



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- d. What did monks used to copy?
- e. Why they used that to copy?
- f. What were living conditions for monks like?

If possible, you could prepare a trip to visit Mont Saint Michel and the Scriptorial in Avranches. If not possible, you can search for another Medieval Monastery or Abbey close to your town and possible to visit.

3. Complete your notes about the topic your group is specialized in.
4. One representative of each of the groups explains what they found out to the other groups and ask the groups about what they should learn about their topics.
5. When the representative returns to the group, he has to explain his/her colleagues what he learned about the other topics, and he has to share his notes.
6. At this point, the teacher has to asses the knowledge obtained about the work of monks and illumination techniques by the use of a Kahoot quiz.

Have a look now to the following documents:



<https://goo.gl/mwrtke>



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<https://goo.gl/zDyGi3>

1. After studying these links, each of the students write a letter about the topic proposed by the teacher.
2. The teacher, after correcting the letters, cuts each of them, and give to another students, who has to order the components of the letter in the correct place on a letter template.
3. After each student completing the task, the teacher will correct the ordered proposals.
4. Students use the knowledge obtained on letter writing and life of monks to adopt the role of a monk who is writing a letter to his family to tell them about his day-to-day activities.
5. The teacher will correct the letter evaluating written expression and vocabulary.

After mastering letter writing, students will learn about illumination, for this reason, they have to see the following video:



<https://goo.gl/8avJHE>

1. Research on a PC and choose a design to copy
2. Using tracing paper, trace the design.



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3. Create gesso as explained in the tutorial.
4. Mix pigments to create the paints.
5. Attach parchment to board.
6. Trace design onto parchment.
7. Paint the designs, leaving spaces for the gesso where the gold leaf will be placed.
8. Apply Gesso and gold leaf to parchment.
9. Remove parchment from board.
10. Scan illumination created as picture files.
11. Students have to film themselves talking about the life of monks and illumination.
12. Using HP Reveal, link the illumination scan pictures to the videos.
13. Remember you can share all your pictures, experiences, videos and other materials created using the hashtag #greatmiddleereuse.

Still continuing with the life in Monasteries, we travel to Greece and study the technique of hagiography. We will start by have a look to the following video:



<https://google/qpr1MR>

And after that, follow this tutorial:



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<https://goo.gl/CGYREY>

To create an example of drawing of any Christian symbol that appear in the video.

We have studied how to decorate clothing and decoration made in monasteries, but we can also reproduce some of the decorations made in buildings. And continuing with Monasteries and holy places, we will begin by studying stained glass windows.

Watch the following videos about Medieval Stained-Glass Windows:



<https://goo.gl/PRhT6T>



<https://goo.gl/wLZHnT>



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<https://goo.gl/2KmT1h>

After watching the videos and taking notes about them, answer the following questions. If any answer not mentioned in the video, search in internet:

1. How were Stained Glass Windows built?
2. How were colours given to the glass?
3. Which material is glass made of?
4. Which is the process followed to create glass?
5. Where was the first Stained Glass Window placed?
6. Which is the purpose Stained Glass Windows were made for?

After learning about Stained Glass Windows, look at the following tutorial about how to create your own Stained-Glass Window:



<https://goo.gl/xHiW2a>

Search for any design in the internet and follow the tutorial to create a stained-glass window.



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Remember you can share photos of the Stained-Glass Windows created using the hashtag #greatmiddlereuse.

But not only windows are decorated in cathedrals. Walls and even floors are usually decorated. In floors and even in some walls we can find mosaics, made with small pieces of different colours, as in the floor of the cathedral of Bitonto.



In the following tutorial you can learn the process to copy a mosaic similar to the one in this Cathedral. Have a look to the link:



<https://google/kvRx5U>

Search for a similar decoration in your own country and copy it using the same technique presented in the video.

After speaking about the decoration of Windows and floors, we will end the activity by studying Mudéjar Art, a typical art only possible to see in Spain where it was born thanks to the coexistence



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of Muslims and Christians in the same areas. First of all see the following links about Mudéjar Art:



<https://google/fwgX1y>



<https://google/JB3Hpy>

And answer the following questions:

1. Which are the main materials used in the Mudéjar Art?
2. Which are the decorative elements in the Mudéjar Art?

Now follow the instructions to create your own Mudéjar Frieze:



<https://google/Huqtkm>

Take photos of it and remember you can share all your experiences and other materials created using the hashtag #greatmiddleereuse.



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Routes and Symbols

During the Middle Ages the main thought was that the World was a book written by the hand of God, where everything had a meaning.

Most of the people, as they didn't know how to do that, couldn't interpret the message, but others could read through nature the hidden messages.

Linked with this idea of everything being a message, they also liked hiding messages, even when sometimes many people could translate these messages.



In this activity we are going to study symbols present in different buildings during the Middle Ages in the different regions.



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To do that, we will study the following link:



<https://goo.gl/mjmh49>

1. With students divided in different groups, you will study the contributions from the different countries, searching for the pictures of the different symbols and taking notes about the description of each of them.
2. Create datasheets with pictures of the symbols and its significance.
3. Before continuing with the activity, it's necessary to put in common the different notes of the students.
4. At that point, after giving to the students enough time to study them, a kahoot quiz on symbols were students have to match the symbol image to the definition can be performed.
5. At that point, students work from own language datasheets to translate text and create an English version.
6. Students record an English translation vocally as MP3 file of each datasheet description.
7. Students listen to the recordings by other students and identify the symbol image which is being discussed, based only on what they hear.
8. Next activity consists on showing a symbol to the class. A student plays the role of a tour guide and must identify the symbol and describe it in English. The other students have to guess which country the symbol comes from.



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9. Investigate the art form of stained-glass windows, including materials and methods used to create stained-glass window.
10. Each of the students choose one of the symbols presents in the original link. Based on the relevant datasheet, recreate the design on tracing paper.
11. Transfer the design onto a glass/transparent plastic panel by etching the design.
12. Using different coloured transparent plastic films, cut segments to fit the areas on the design stick the segments onto the transparent plastic/glass panel. Mount the panels onto the windows.
13. Put the designs on display in a Public Place, complete with the flag of the country and the datasheet created in English. Take pictures and share them in the social media by the use of the hashtag #greatmiddlereuse.



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Architectural Elements.

During the Middle Ages there many changes in the traditional ways of construction, the types of building changes, there are different needs, and it makes appear mainly two architectural styles that represent this period of time as no one else.

Romanesque and Gothic styles develop during Medieval times in Europe. First of them, mainly from 11th to 13th Centuries. With the construction of Churches and Monasteries, due to the economic improvement and the changes in spirituality. The construction of castle was also developed during these years. The name of Romanesque art is due to the roman inheritance of its architectural elements. Its buildings are solids, with rectangular shape, round arches and decorated with religious paintings and sculptures.

From the 13th to the 15th Centuries, the Gothic style substitute Romanesque, developed in the cities. This is the period of the great cathedrals, but also other types of buildings such as palaces and universities were. Constructed. Gothic buildings are high and allow the light go in. The Cathedral was the symbol of the city.



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We will start by watching some of these videos:



<https://goo.gl/cjULBc>



<https://goo.gl/QctNic>



<https://goo.gl/jenrhQ>



<https://goo.gl/V366qx>



<https://goo.gl/oiQbXG>



<https://goo.gl/jk6VwQ>



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<https://google/1KQTss>



<https://google/MhKXyy>

1. In the second video they explain a relationship between the develop of some style of construction (and buildings) and some of the Medieval Routes studied during our project. Explain this part.
2. Which consequences had the development of pilgrimage routes?
3. During the Middle Ages, to what are dedicated most of the art creations?
4. What were reliquaries? And what were they used for? Do that explain their characteristics?
5. What was the mission of carved and painting figures in walls and doors?
6. Is it common to know the name of the artists in the Middle Ages? Could you give any name after watching the videos?
7. Which is the second influence apart from pilgrimage to the Romanesque art?
8. Explain the changes from the classic Basilica building to the Romanesque church according to the fourth video.



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9. Is there any relationship between the shape of the vaults and the way of leaving of Cluny monks?
10. Give name to some of the tools Romanesque architect had to build their churches.
11. Name the main characteristics that allow recognizing Gothic style.
12. Who did really the effort to build a Gothic Cathedral?
13. Was this building integrated in the live in the city?
14. Who was the main driving force of the Gothic style?
15. Which is the meaning of light in Gothic churches?
16. Is there any difference in the messages wanting to transmit the carved figures and sculptures in Gothic than that of Romanesque?
17. Which is the mission of Stained Glass Windows?

As it is said in the last video, we can learn a lot about the live in the Middle Ages through the study of Stained Glasses, and in general, through the study of art.

After watching the videos, with the class divided in groups, each of the groups does a brainstorming session and created a presentation on one of the following subjects:

1. Architects and the tools they used
2. Parts of the church
3. Evolution of construction methods
4. Evolution of construction styles.



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Additional information may be needed. The students speak for three minutes about what they learned to pass on their knowledge to the other groups.

Play the following Kahoot to check your knowledge about Gothic and Romanesque styles:



<https://goo.gl/74rkqD>

You can also check your abilities of recognition of architectural styles with the following test:



<https://goo.gl/SJJ7eW>

Visit the following link, where you can find the work of investigation made by all the original countries of our association about architectural elements. Make a table including architectural elements and use the files there to justify if it's present or not in the other countries. Include in the table in which countries is present each of the architectural elements.



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<https://goo.gl/VFrFjH>

Justify the presence of common elements with the existence of the Medieval routes studied during the project, and that are linked from the following interactive map:



<https://goo.gl/YkcAKB>

In groups, investigate about one of the following buildings, searching for photos and each member makes a brief description text of any of their architectural elements.

1. Cathedral of Notre Dame
2. Cathedral of Durham
3. Cathedral of Saint Denis
4. Cathedral of Leon
5. Sainte Chapelle
6. Mosque of Lala Mustafa Pasha
7. Cathedral of Wells
8. Mont Saint-Michel
9. Cathedral of Aquisgran



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Record the description in an audio file. Establish a contest in the class. Students listen to the recordings by other students and identify the architectural element which is being discussed, based only on what they hear.

After classifying all the architectural elements, each group exposes the work they have done about the Medieval buildings.

Students prepare a talk on architecture. Each group should be able to talk about any part of the church and describe why it is used.



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Recreation of elements in 3D

After studying different elements and buildings, it's the moment to try to reproduce some of these buildings or at least part of it in 3D.

To start with this part of the work, we will choose the element we want to reconstruct.

Divided into groups, students perform the following tasks:

1. Search for different Medieval buildings in your town or towns of your region.
2. You can search both buildings already existing or disappeared buildings.
3. Look for photos, pictures, paintings of these buildings and prepare a presentation to class.
4. Once you have presented several buildings, you have to choose one of them to be recreated.
5. A project will be presented to the class, explaining the building you are going to recreate. The information must include:



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- a. Name of the building
- b. History of the building
- c. Curiosities of the building/Changes that has suffered during this time
- d. Plans, including front view, side view and top view of the building
- e. Techniques you are going to use.

To get inspired, you can see the following examples of 3D recreation of some of the buildings of the Original countries in the project:



<https://goo.gl/3ARhia>



<https://goo.gl/pBrckB>



<https://goo.gl/M6rTou>



<https://goo.gl/4TRRvh>



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Once the building a technique are chosen, it's time to start with the recreation. The created materials will be exposed at the School.

Remember you can shared all your creations in the Social Networks by the use of the hashtag #greatmiddlereuse.

But the Medieval building by excellence is the Cathedral, specially the Gothic cathedral.

Let start by watching one of these two videos about the construction of a Gothic Cathedral:



<https://goo.gl/x5kRPh>



<https://goo.gl/whRcxn>

With the students divided into different groups, investigate about the different sections:

1. Architects and the tools they used.
2. Parts of the church.
3. Evolution of construction methods.
4. Evolution of construction styles.



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Each of the groups has to create a Power Point presentation and will expose their work at class. Minimum time for the speech will be 15 minutes each group.

Did you know?

In France, in Dol-de-Bretagne, you can visit Cathedraloscope, the exhibition where all these topics. Maybe it could be an interesting trip with your class. Here a video for you to practise your French:



<https://goo.gl/n4q5CV>

After this theoretical introduction, we are ready to start with the 3D Recreation. First of all, we will find a simple way to recreate a Gothic Cathedral using cardboard:



<https://goo.gl/hqmSnQ>

Look for templates or create them on your own and recreate the Gothic Cathedral you decide. You can even use the technique to recreate other buildings.



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The buildings you recreate can be shared in the Social Networks by the use of the hashtag #greatmiddlereuse.

But we will go farther and look for a more ambitious project. Now, each of the groups will choose one aspect of the church which they wish to recreate and calculate the dimensions required to create a scale model.

An inform with all the information about the aspect they want to recreate must be presented, including the name of the aspect, the function in the Cathedral, the evolution of this element and the drawing of the front view, side view and top view.

After that, we will study basic functions in solidworks, the program we are using to recreate the chosen aspect. With this purpose, you can use the following links:



<https://goo.gl/qkytYP>



<https://goo.gl/hBFQgd>



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<https://goo.gl/Zze3Cs>



<https://goo.gl/H6u8No>

Once we are familiar with the use of Solid works, it is the moment of use the 3D recreation tutorial that can be found in the following link to recreate the aspect of the church that has been chosen using the SolidWorks software.



<https://goo.gl/S4MQHq>

If you have the possibility, the model can be printed using a 3D printer. Put the final product on display in School and remember that all the products created can be shared in the Social Networks by the use of the hashtag #greatmiddlereuse.

Remember that if you want to perform a less ambitious project with your students, you can find models for some of the most known buildings around the world in the following link:



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<https://goo.gl/C4C8uV>

But if we don't want just to reproduce one of the buildings you can decide to recreate any of the buildings. Watch the following link:



<https://goo.gl/C4C8uV>

Think on a Medieval town, or the Medieval part of a town, and follow the steps indicated to reproduce in 3D the map of the town.



<https://goo.gl/a2ctV1>

Again, remember you can share the results in the social networks by the use of the hashtag #greatmiddlereuse.



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ibliography

- Mas-Guindal Lafarga, Antonio José: *Mecánica de las Estructuras Antiguas o cuando las estructuras no se calculaban*. Madrid. Munilla-Leria, 2011.



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Zespół Szkół nr 5 im. Jana Pawła II
ul. Staszica 10, 44-330
Jastrzębie - Zdrój, Poland
www.zs5.jastrzebie.pl



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