
















Stafford Manor
High School

Year 9 Summer Term 1

Core Knowledge

-  Art
-  Biology
-  Chemistry
-  Design Technology (DT)
-  Digital Communications
-  English
-  French
-  Geography
-  History
-  Maths
-  Performing Arts
-  Physical Education
-  Physics
-  SEL
-  Textiles



1. Describe why presentation is important.

- How we present work can demonstrate professionalism.
- We present our analysis in a way that is appropriate for the different medias used.

2. Why is it important to complete a mock GCSE project?

- To prepare you for your GCSE's, even if you decide not to choose Art, it is skills that can be used in other subjects.

3. Describe what a record board is.

- A board that shows how you can draw, what medias you are capable of using and how you challenge yourself with them.

4. What must be included in a successful record board:

- A title of the relevant board.
- A selection of at least x5 high quality drawings in different medias.
- Annotations based on the drawings. Always using the guidance booklet to assist you.



5. Key word definitions:

- Composition: How different elements are combined.
- Contemporary: Art made today by living artists.
- Contour: the artist outlines the shape / mass of an object.
- Curling: Strips of paper that are rolled/looped to create shapes
- Geometric: Using shapes to create a piece of art
- Overlapping: Placing objects over one another to create depth.
- Perspective: Gives art a 3D look.
- Realistic: Subjects painted from everyday life.
- Shading: Darkening of a drawing to show depth.
- Soft edged: Indicates a gradual or smooth transition.
- Symmetry: Involves mirroring of portions of an image.

BIOLOGY

1. What is Mitosis?

- ❖ Mitosis is cell division which produces **two genetically identical** daughter cells from one cell. The cells produced are **diploid** (have 23 chromosomes.)
- ❖ Mitosis is used for growth and repair and asexual reproduction.
- ❖ It happens in every cell in the body excluding the gametes.

2. What are the stages of mitosis?

❖ **IPMAT**

Interphase → Prophase → Metaphase → Anaphase → Telophase

3. What are specialised cells?

- ❖ Cells that have undergone **differentiation** to become specialised.
- ❖ Specialised cells are specially adapted so they can carry out specific jobs.
- ❖ Examples of specialised cells include red blood cells, white blood cells, sperm cells, egg cells, ciliated epithelial cells.
- ❖ Plant cells also have specialised cells – these include root hair cells, palisade cells, Xylem cells and phloem (sieve and companion cells.)

4. What are stem cells?

- ❖ Stem cells are cells that have not undergone differentiation. They are useful as scientists can direct them to grow into any type of cell they want.
- ❖ Embryonic stem cells can differentiate into any type of cell
- ❖ Adult stem cells can differentiate into a small number of cells, dependent on where the stem cell is located.

5. How do plants grow?

- ❖ **Cell division, Cell elongation and Differentiation.**
- ❖ Mitosis (cell division) happens in specific regions of plants known as the meristem, these are found in the tip of roots and shoots.
- ❖ Cells that are found in the meristem can differentiate into any types of plant cell. This is why plants can regrow shoots/stems if they break.

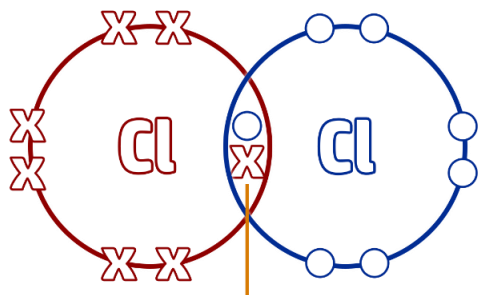
6. Uses of stem cells

- ❖ Produce cells required for bone marrow transplants.
- ❖ To grow organs required for medical transplants.
- ❖ Medical research.

CHEMISTRY

1. What is a covalent bond?

- Shared **pair** of **electrons**



Shared PAIR of Electrons

2. Why do covalent compounds not conduct electricity?

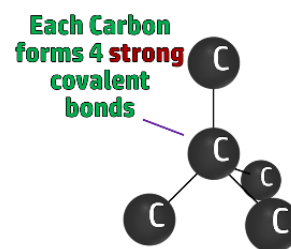
- Electrons** are **not** free to move

3. Why do simple covalent compounds have low melting points?

- Not much energy** to break the **weak intermolecular forces**.

4. Why is diamond used in cutting tools?

- Each carbon atom forms **4** strong covalent bonds.
- Diamond is strong because it has lots of **strong covalent bonds**, meaning lots of energy is needed to break the strong covalent bonds.

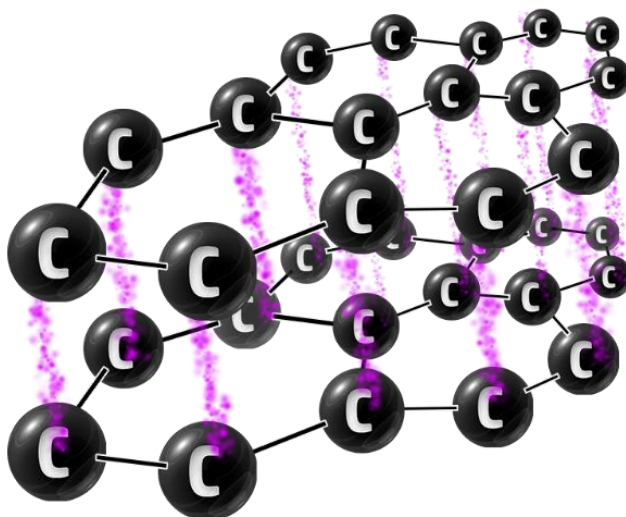


5. Why is graphite used as a lubricant / electrode?

- Lubricant:** Graphite has **layers** which can **slide** past each other.
- Electrode:** Graphite only forms **3** covalent bonds. Each carbon has a **delocalised electron** which is **free to move**.

LUBRICANT:
Layers can
slide past
each other

ELECTRODES:
Delocalised
Electrons
can Flow



DESIGN TECHNOLOGY

1. What is a production line?

- ❖ A production line is a system where products are made through a series of **sequential steps**, designed for efficiency and consistency in mass production.

2. How do you use a solder?

- ❖ **Prepare & position:** Gather materials and place components. Heat soldering iron.
- ❖ **Solder the joint:** Heat joint, apply solder, and let it cool naturally.
- ❖ **Finish & clean:** Unplug iron, cool down, and tidy workspace.

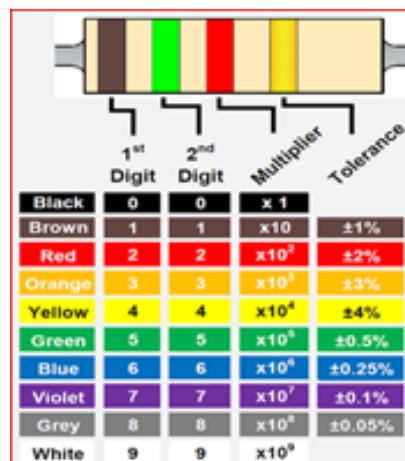
3. How do you solder safely?

- ❖ **Wear safety goggles:** Protect your eyes from hot solder and fumes.
- ❖ **Avoid hot surfaces:** Never touch the soldering iron's tip when it's hot.
- ❖ **Work in a ventilated area:** Prevent inhaling solder fumes; use a fume extractor if possible.

4. Key Word Definitions:

- ❖ **Battery:** Stores and supplies electrical energy.
- ❖ **Capacitor:** Stores and releases electrical charge.
- ❖ **Current:** Flow of electric charge.
- ❖ **Electronics:** Study of circuits and devices using electrons.
- ❖ **LED (Light Emitting Diode):** Emits light with electricity.
- ❖ **Ohm's Law:** Relates voltage, current, and resistance.
- ❖ **PCB (Printed Circuit Board):** Connects electronic components.
- ❖ **Resistors:** Controls electric current flow.
- ❖ **Soldering:** Joins components with molten metal.
- ❖ **Voltage:** Measures electrical potential difference.

5. What are the resistor colours?



The diagram shows a resistor with four color bands: Brown, Red, Yellow, and Grey. Below the resistor, the bands are labeled as 1st Digit, 2nd Digit, Multiplier, and Tolerance. A table below the diagram provides the color code for each band.

Color	1 st Digit	2 nd Digit	Multiplier	Tolerance
Black	0	0	x 1	
Brown	1	1	x10 ¹	±1%
Red	2	2	x10 ²	±2%
Orange	3	3	x10 ³	±3%
Yellow	4	4	x10 ⁴	±4%
Green	5	5	x10 ⁵	±0.5%
Blue	6	6	x10 ⁶	±0.25%
Violet	7	7	x10 ⁷	±0.1%
Grey	8	8	x10 ⁸	±0.05%
White	9	9	x10 ⁹	

DIGITAL COMMUNICATION



1. What are the three main stages of media production?

1. Preproduction (planning, scripting, storyboarding)
2. Production (the actual shooting, recording or creating)
3. Post-Production (everything between production and creating the final media object)

2. What tools can be used in pre-production?

Mind maps, spider diagrams, mood boards, visualisation, storyboards, scripts

3. What is a visualisation used for?

To plan the layout of a still image, or show how the finished item may look.

4. What is a storyboard used for?

Provide visual representation of how a media project will look along a timeline.

5. What are vector graphics?

Graphics composed of mathematical paths and colour information.

6. What are raster graphics?

Graphics composed of pixels containing colour information.

7. What is copyright?

The legal right to control the production and selling of a piece of media.

8. Name seven types of camera angle.

1. Close up
2. Medium Shot
3. Long Shot
4. High Angle
5. Low Angle
6. Over the shoulder
7. Pan

ENGLISH

1. What is enjambment?

- 🔗 The continuation of a sentence or phrase from one line of poetry to the next

2. What is caesura?

- 🔗 A pause near the middle of a line.

3. In the poem 'Valentine' what does the onion symbolise?

- 🔗 It symbolises a positive aspect of love - honesty and optimism, often experienced at the beginning of a relationship.

4. What is the poem 'Bedecked' about?

- 🔗 Gender and identity - The speaker criticises people's judgement on her son, as he does not conform to societal standards.

5. What is a metaphor?

- 🔗 A metaphor is a figure of speech that compares two unrelated things, by stating that one thing is another

6. What was the poem 'The Right Word' about?

- 🔗 The poem explores issues of language and identity; how we see and label other people, and how those people may see and label themselves.

7. What is 'free verse'

- 🔗 a poetic style that does not feature a set rhythm or rhyme scheme

FRENCH

1. What do the verbs 'mettre' and 'remettre' mean?

🌀 To put; to put back

2. Write the conjugated verb (present tense) in English: je mets; tu mets; il / elle / on met; nous mettons ; vous mettez ; ils / elles mettent

🌀 I put ; you put ; he /she / we put; we put; you (plural) put; they put (m/f)

3. Write out remettre following the same pattern

🌀 Je remets; tu remets; il /elle /on remet ; nous remettons ; vous remettez ; ils / elles remettent

4. What does the verb 'perdre' mean?

🌀 To lose

5. 'perdre' does not have a stem change like mettre / remettre, but the endings are the same. Can you add the endings? Je perd? Tu perd? Il/elle/on perd? Nous perd? Vous perd ? ils / elles perd ?

🌀 Je perds ; tu perds ; il /elle/on perd ; nous perdons ; vous perdez ; ils/ elles perdent

6. What do these nouns mean? L'inhabitant, le sac, le fleuve, la campagne

🌀 Resident / inhabitant ; bag ; river ; countryside

7. What does 're' in front of a verb mean?

🌀 To do it again (eg revoir – to see again – where revision comes from!

8. What does 'jamais' mean?

🌀 Never

GEOGRAPHY

1. What is Russia like?

- ❖ Size 17.1 sq km
- ❖ Population 146m
- ❖ Natural wealth oil, gas, coal, timber, metal, diamonds

2. What are Russia's main physical features?

- ❖ The Ural Mountains
- ❖ Caucasus Mountains
- ❖ Siberia
- ❖ Lake Baikal
- ❖ Volga River

3. What was the Russian Revolution?

- ❖ The overthrowing of the Tsar of Russia and the change to a Bolshevik State. The rise of communism.

4. What is the EEZ?

- ❖ Exclusive economic zone extending 370km out from the Russia coastline.

5. How does this benefit Russia?

- ❖ Russia can exploit all the resources in this zone especially natural gas and oil.

6. What biomes are found within Russia?

- ❖ Tundra
- ❖ Taiga
- ❖ Temperate forest
- ❖ Steppe
- ❖ Mountain

7. How many time zones are in Russia?

- ❖ 9 time zones

HISTORY

1. What is a democracy?

- 🚫 A system of government by the whole population, typically through elected representatives

2. What is a dictatorship?

- 🚫 A government by a dictator where they make the rules without input from anyone else

3. What is communism?

- 🚫 A political theory in which all property is owned by the state and each person contributes and receives according to their ability and needs

4. What is fascism?

- 🚫 An authoritarian and nationalistic system of government

5. Which country became communist in 1917?

- 🚫 Russia

6. What did Germany have to accept the blame for in the Treaty of Versailles?

- 🚫 Starting the First World War

7. When did Hitler become German chancellor?

- 🚫 30 January 1933

8. When did Hitler invade the Rhineland?

- 🚫 1936

9. Which country did Hitler unite Germany with in 1938?

- 🚫 Austria

10. Which part of Czechoslovakia did Britain give to Hitler in Sept. 1938?

- 🚫 The Sudetenland

11. When did Germany invade Poland?

- 🚫 1 September 1939

12. What was the Blitz?

- 🚫 The bombing of British cities by Nazi Germany

13. When was D-Day?

- 🚫 6 June 1944

14. On which country were the first atomic bombs used?

- 🚫 Japan

MATHS

1. Key word definitions:

- 🌀 **Inverse:** The opposite
- 🌀 **Infinite:** Continues forever
- 🌀 **Finite:** Has an end
- 🌀 **Ascending:** going up
- 🌀 **Descending:** going down

2. What are the inverse operations of...

Add \leftrightarrow Subtract
Multiply \leftrightarrow Divide
Square \leftrightarrow Root

3. What does changing the subject mean?

Rearranging an equation or formula so that it is equal to a different unknown.

4. What is the nth term?

A rule that you can use to find any term in a sequence.

5. How do you find the nth term?

Find the difference between the terms.
Then compare the sequence to the timestable for the difference.

6. What is an arithmetic sequence?

A sequence of numbers that increases by the same amount each time.

7. What is a geometric sequence?

You find the next number in the sequence by multiplying by the same number each time.

8. What is the gradient?

The steepness of the line.

9. What is the y-intercept?

Where the line cross the y axis.

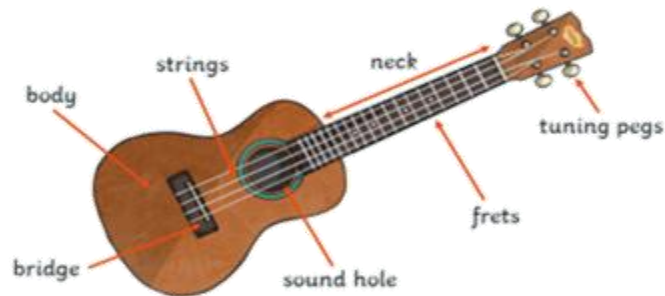
PERFORMING ARTS

1. Facts about the Ukulele

The ukulele is a small, four-stringed musical instrument that originated in Hawaii. Here are some interesting facts about the ukulele:

- 1. Origins:** Ukulele began in 19th-century Hawaii, inspired by Portuguese instruments.
- 2. Name Meaning:** "Ukulele" translates to "jumping flea" in Hawaiian, reflecting players' nimbleness.
- 3. String Configuration:** Standard ukuleles have four strings, often tuned G-C-E-A.
- 4. Variety of sizes:** Sizes range from soprano to baritone, accommodating different preferences.
- 5. Easy to learn:** Ukulele's small size, lightweight, and simple chords make it beginner-friendly.
- 6. Popular genres:** Ukulele transcends Hawaiian music, fitting into folk, pop, rock, and jazz.
- 7. George Formby's Influence:** George Formby's banjolele playing sparked ukulele popularity in 1930s UK.

2. Getting to know your Ukulele



3. Key words used when referring to a Ukulele

Baritone: Largest size, often tuned like top four guitar strings (D-G-B-E).

Bridge: Supports strings, transfers vibrations to body.

Chords: Basic, easy-to-learn structures make ukulele beginner-friendly.

Concert: Slightly larger than soprano, balances size and tone.

Fingerpicking: Plucking strings with fingers for melodic patterns.

Fretboard: Area where strings are pressed for different pitches.

Soprano: Smallest, most traditional ukulele size.

Soundhole: Opening on body allowing sound resonance.

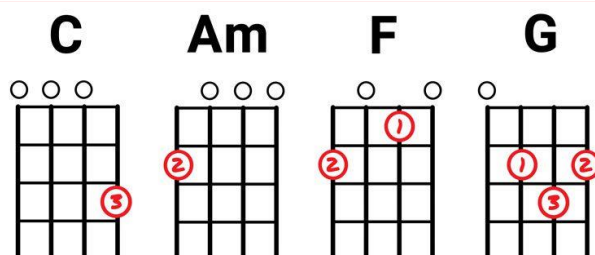
Strings: Typically four nylon or synthetic gut strings.

Strumming: Associated with rhythmic strumming patterns.

Tenor: Larger size, deeper and fuller sound than soprano or concert.

Tuning: Commonly G-C-E-A, variations for styles.

4. Some Chords:



PHYSICAL EDUCATION

1. Rounders

Skills

Key Words	Coaching Points
Throwing and Catching	<p>Underarm throw- Grip the ball as in overarm throwing. Put weight on you back foot – swing arm backwards.</p> <p>Swing forward – step onto front foot. Release ball with a flick of the wrist. The ball is rolled off the fingers, not the palm.</p> <p>Over arm throw Having collected the ball in both hands, stand sideways to the target. The throwing arm is taken back behind the head. Pull the non-throwing arm through. Throwing arm swings forward keeping the elbow at least level with top of throwing shoulder. The wrist should be outside the line of, and behind, the elbow. Release the ball with both feet on the ground and the chest facing the target. Swing the throwing arm through so that both arms end up behind the opposite hip. Keep the head and eyes facing the target.</p>
Fielding and Positions	<p>Long barrier -Approach the ball at speed and as you get into line with the ball, twist your upper body, leading with the shoulder furthest from the ball. Bend both knees, so that the knee of the leg nearest to the ball touches the ground, but it is also next to the back of the heel of the other leg. With fingers down and head forward, pick up the ball and then stand back up ready to deliver an overarm throw.</p>
Batting	<p>Sideways on. Feet shoulder width apart. Knees bent. Batting arm back straight, Bat up at 90 degrees to arm. Keep head still. Watch the ball at all times. Transfer weight from back to front foot. Follow through in direction you want the ball to go.</p> <p>Advanced: Right hander-Hit ball early to hit to the left to hit late to hit more to right.</p>

2. Rules

1. You must start in the batting box and not step out of it.
2. You only get 1 ball bowled at you, after which you must run whether you hit it or not.
3. You must keep in contact with a post once you have decided
4. A no ball is – above the batters head, below the knee, the wrong side of the body, too wide and too close into the body.
5. If you hit a ball behind, then you must wait at first post until the ball comes forward of the batting box. You may then run on.
6. If you hit the ball and get all the way round you score 1 rounder, if you get to 2nd post, you score ½ a rounder. If you do not hit the ball but get all the way round you score ½ a rounder. You also score ½ a rounder if you get 2 no balls bowled at you. You also score ½ a rounder if you get 2 no balls bowled at you.
7. You get ½ a rounder for obstruction if the fielders get in the way of your run to a post to stop

PHYSICS

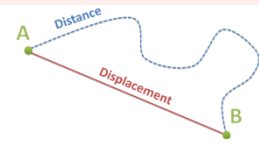
1. What are scalar and vector quantities?

- Scalar quantities have a **size** (magnitude) but **no direction**.
- Vector quantities have **both size and direction**.

Examples of scalar quantities:	Examples of vector quantities:
Distance (m) Speed (m/s) Time (s) Energy (J) Mass (kg)	Displacement (m) Velocity (m/s) Acceleration (m/s ²) Force (N) Weight (N) Momentum (kg·m/s)

2. Vector V Scalar

- Distance** and **displacement** are both measured in **meters**, distance is how far the journey is, and displacement is the distance covered, and the direction travelled, in a straight line.
- Speed** and **velocity** are both measured in **metres per second**, speed is how far moved every second & velocity is speed in a certain direction.



3. What is speed?

- Speed tells us how far an object is travelling every second.

$$\text{Speed} = \text{distance} \div \text{time}$$

- Some **typical** speeds are:

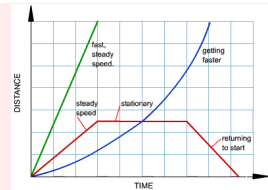
Walking	Running	Cycling	Cars (town)	Car (motorway)	Trains
1-3 m/s	3-6 m/s	7-10 m/s	13 m/s	31 m/s	55 m/s

4. How can we investigate speed?

- We measure speed by measuring distance and time.
- We often use a ruler for measuring distances. For longer distances we may use a tape measure or a trundle wheel.
- We often use a stopwatch to measure time but a light gate can measure time, especially for faster speeds, with much more accuracy.

5. How do we read distance-time graphs?

- A **horizontal** line tells us that the object is **stationary**.
- A **straight sloping** line tells us the object has a **steady speed**.
- A **steeper line** indicates a **higher speed**.
- A **curved line** tells us that the **speed is changing**



6. How do we calculate acceleration?

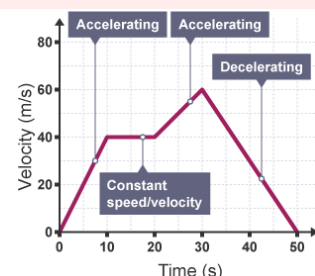
- Acceleration is the rate of change of velocity (how quickly velocity is changing).

$$\text{Acceleration} = \text{change in velocity} \div \text{time}$$

- The **acceleration** due to **gravity**, 'g', on Earth is **10 m/s²**.

7. How do we read velocity-time graphs?

- A **horizontal** line tells us the object is travelling at a **constant speed**
- A **straight sloping** line tells us the object is **accelerating** at a steady rate
- A **steeper line** indicates **higher acceleration**
- A **curved line** tells us the **acceleration is changing** (getting steeper = increasing acceleration)





1. Examples of sexually transmitted infections (STI) include:

- | | |
|---|---|
| <ul style="list-style-type: none">❖ Chlamydia❖ Gonorrhoea❖ Genital warts❖ Syphilis | <ul style="list-style-type: none">❖ HPV❖ HIV❖ Genital herpes❖ Pubic Lice |
|---|---|

2. Symptoms of an STI include:

- | | |
|---|--|
| <ul style="list-style-type: none">❖ Pain when urinating❖ Bleeding during and after sex❖ Pain and swelling of the testicles❖ Small growths or bumps on the genitals | <ul style="list-style-type: none">❖ Itching❖ Redness/Rashes❖ Unusual discharge |
|---|--|

3. what is contraception?

- ❖ A barrier or hormonal method to stop pregnancy and in some case STI's.

4. Examples of barrier contraception include:

- | | |
|--|--|
| <ul style="list-style-type: none">❖ Male Condom❖ Female Condom (Femidom)❖ Dental Dam | <ul style="list-style-type: none">❖ Diaphragm❖ Cervical cap❖ Spermicides |
|--|--|

5. Examples of hormonal contraception include:

- | | |
|---|--|
| <ul style="list-style-type: none">❖ Contraceptive Pill❖ Vaginal ring❖ Contraceptive patch | <ul style="list-style-type: none">❖ Implant❖ Coil (IUD)❖ Contraceptive injection |
|---|--|

6. What should you check before opening and using a condom?

- | | |
|--|---|
| <ul style="list-style-type: none">❖ In date❖ Packaging is not damaged | <ul style="list-style-type: none">❖ Has a CE mark or Kitemark |
|--|---|

7. Define Stalking

- ❖ **Stalking** – To follow someone around without their consent, sometimes consistently and sometimes taking photos or footage.

TEXTILES

1. What is a dream catcher

- ❖ Dreamcatchers, popularized in the 1980s, are now common in crafts, jewellery, and home decor.
- ❖ They filter dreams, trapping bad ones and allowing good ones to pass through.
- ❖ When sunlight hits them in the morning, bad dreams are destroyed, while good dreams reach the sleeper through the feathers.

2. How are they made?

- ❖ They are made from a wooden hoop, usually willow, onto which a net or web is woven with natural fibres. They typically have feathers and beads hanging from the hoop as well.
- ❖ While modern dreamcatchers come in various forms, authentic ones are generally only a few inches in size and are handmade from all natural materials with a leather-wrapped frame.

3. Examples of Dreamcatchers:



4. Artist information – Olivia Bianchi

Olivia Bianchi is a interior textile Artist who creates textile pieces for your home. She lives in California in America.

She describes her online company as a therapy, Spiritual, Nature Decor For Your Home & Office. She has a online Etsy shop where she sells her handmade home décor.

Her online company is called 'SpiritualArtistLine'.

Olivia Bianchi also sells digital artwork online as well as her textile woven items.

She makes the dreamcatchers out of recycled materials which are all natural.

She has sold over 2659 items on her online shop. She adds embellishment and sometimes crystals to her dream catcher.

She is inspired by the tradition dreamcatchers which have woven elements within there catchers.