

SECTION 1: FACES

In this section we compare the features of different faces, and how AI uses these features to recognise different people.



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Introduction to Faces

ARTISTS

The two artists in this section use artificial intelligence (AI) to mix unique faces with existing images to build new faces.

[Libby Heaney's](#) work shows the use of AI to create a 'deepfake', mixing her own face onto performances by Elvis.

[Harshit Agrawal's](#) interactive artwork uses AI to merge your face with masks influenced by traditional southern Indian masks.

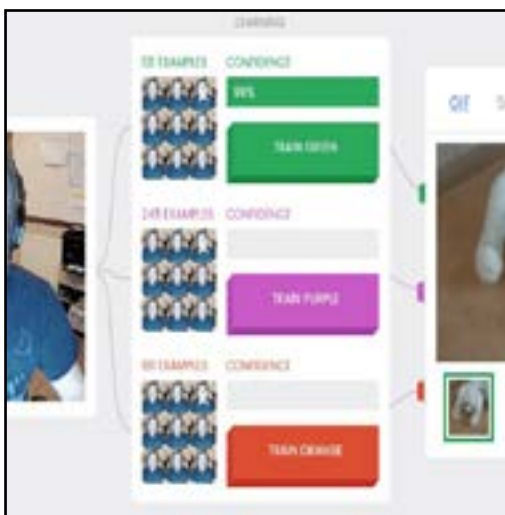


ONLINE RESOURCES

[Teachable Machine](#) helps you train your first machine learning model: it recognises faces you pull at the camera (INPUT) and it shows you animal GIFS in return (OUTPUT).

[Cartoonify](#) uses a picture you upload and an AI turns it into a line drawing...it needs a few more art lessons though!

[Anonymizer](#) takes a picture you upload and shows you 'fake people' that look similar. The 'fake people' are all made by an AI. You can even make your own and judge how 'human' they look.



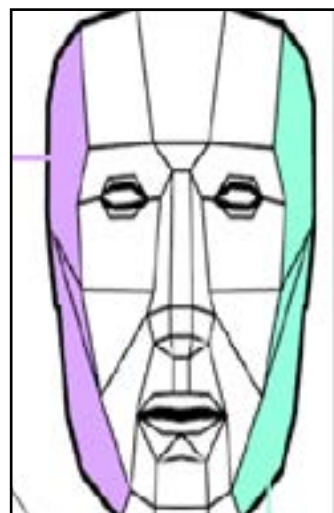
ACTIVITIES

Boolean Face Builder #1 challenges you to pick a face from a group based on our description using Boolean Operators.

Boolean Face Builder #2 puts you in charge, where your friends have to pick from a group of faces using your description.

Boolean Face Builder #3 sees how you and a friend build faces differently when you're given the same description.

Low Poly Mask takes face-building to a new level, where you can customise a papercraft mask that you can then cut out and wear.



Mask by Stephen Kongsle ([LINK](#) | [BY-NC-SA 4.0](#))

ELVIS, by Libby Heaney

ABOUT THE EXHIBITION

Is Elvis really dead?

Elvis is a two-channel video portrait of the artist as Elvis and Elvis as the artist using a machine learning technique known as deepfake face swap.

Since Elvis and Libby have different facial structures, there's a subtle blurring of identity - a non-binary Elvis - an uncanny hybrid of them both.



Audience members come to the piece thinking that both screens are showing the original Elvis, but then notice the differences due to the deepfakes. The piece highlights the constructed nature of gender, particularly in relation to recent digital technologies. The work questions the notion of male author genius and also talks about our desire and consumption around the cult of celebrity.

ABOUT THE ARTIST

[Libby Heaney's](#) post-disciplinary art practice includes moving image works, performances and participatory and interactive experiences that span quantum computing, virtual reality, AI and installation.

Heaney's practice uses humour, surrealism and nonsense to subvert the capitalist appropriation of technology, the endless categorizations and control of humans and non-humans alike.

Instead, Heaney uses tools like machine learning and quantum computing against their 'proper' use, to undo biases and to forge new expressions of collective identity and belonging with each other and the world.



To find out when and where you can see the artwork, visit the festival site: [Art-AI.io](#)

MASKED REALITY, by Harshit Agrawal

ABOUT THE EXHIBITION

What's it like to change your identity?

In this installation, AI is used to merge your face with an Indian Mask, creating a 'masked reality'.

Argawal creates faces in a live interactive work, getting inspiration from traditional mask cultures of different regions of India.



Masks and face transformative decorations have been fundamental across the Indian culture in our journeys into unknown realms, in our celebrations of the malleability of human representation, or as a tool for practical disguise and entertainment.



In this piece, an audience member's face is mixed with faces inspired by dance rituals of southern India in real-time. One side being the Kathakali face painting depicting a female form, the other is a Theyyam face painting, depicting a male form, highlighting the fluidity of identity.

ABOUT THE ARTIST

[Harshit Agrawal](#) is an AI and new media artist.

He explores what he calls the 'human-machine creativity continuum'- the melding of human and machine creative agency. He uses machines and algorithms and often creates them as an essential part of his art process, embracing becoming the cyborg artist.

He uses AI, drones, sensors, and augmented reality technologies, creating both extreme and alternative narratives to what technology companies and creators bring forth, providing a platform for the audience to explicitly engage and converse with these, rather than being implicitly steered by them.



To find out when and where you can see the artwork, visit the festival site: [Art-AI.io](#)

TEACHABLE MACHINE, by Experiments with Google

ABOUT TEACHABLE MACHINE

This experiment lets you explore how machine learning works, in a fun, hands-on way.

You can teach it to recognise faces, objects, anything really, using your camera, live in the browser - no coding required!

Play here:

www.teachablemachine.withgoogle.com/v1/

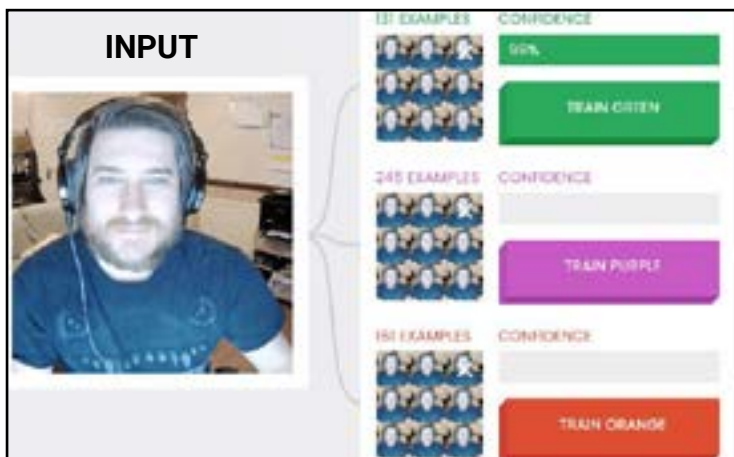


HOW IT WORKS

Go to the Teachable Machine experiment page above (works on desktop and mobile), and make sure your camera is turned on.

Follow the instructions until you see the Train Green, Train Purple, and Train Orange buttons.

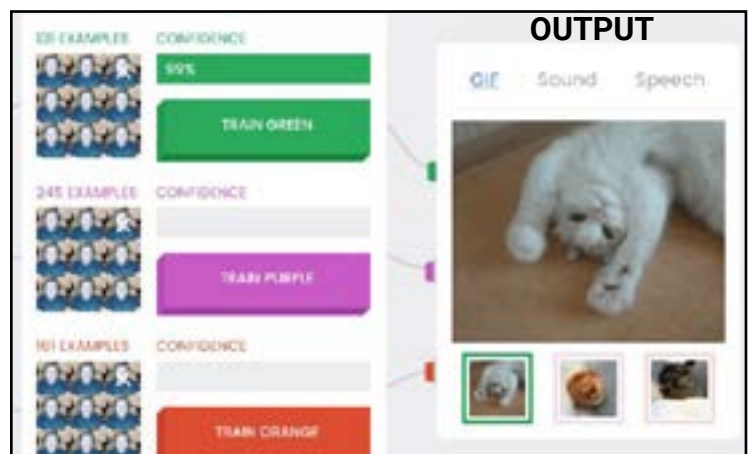
Once you are there, press and hold one of the buttons down while pulling a funny face and hold it for a few seconds. This is your INPUT.



Here you have trained it to recognise that specific face, and to show you a GIF (an OUTPUT) when it sees you pull that face again.

Do this for each button, but make sure you pull a different face for each one.

Once you've done this for all of them, then the machine is ready to recognise faces!



Now, without pressing the buttons, pull the different faces and watch the machine show you the OUTPUT that it picked - it is set to GIF, but you can change the output to sound or speech.

So there you have it! You've trained your first Machine Learning model to show you pet GIFs when it recognises you pulling funny faces! Artificial Intelligence at its best!

Play with Teachable Machine here:

teachablemachine.withgoogle.com/v1/

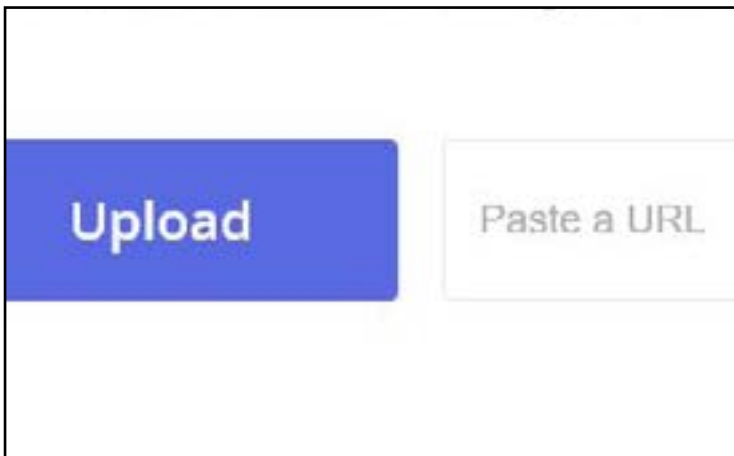
CARTOONIFY, by Kapwing

ABOUT CARTOONIFY

What happens when AI tries to draw your photo?

Cartoonify turns your photo into a cartoon drawing, powered by [Draw This](#) by [Dan Macnish](#) and the [Google QuickDraw](#) dataset.

Play here: www.kapwing.com/cartoonify



The screen will say 'Your watermark-free content is being exported!' and will have some code below, but just wait a little bit.

You will then be shown what the AI thinks was in the picture, and hopefully it will make a fun drawing from it!

The drawings made by the AI can be a bit mixed, some very similar to the picture and some totally different!

The AI got a bit confused by this picture and merged the face with people in the background!

This AI is still learning to recognise things better, and it is using the drawings people create in [Quick, Draw!](#) Now you try and see if the AI can draw your pictures!



HOW IT WORKS

Go to the Cartoonify page above, and upload a photo or paste a URL to an image online.

Pick something clear, maybe try a pet looking at the camera, and upload that to Cartoonify.

The AI will then try to recognise what is in the picture and make its own line drawing of it.



Play with Cartoonify here:

kapwing.com/cartoonify

ANONYMIZER, by Generated.Photos

ABOUT ANONYMIZER

Generated.Photos uses AI to create faces that are 100% fake. The Anonymizer tool uses a photo you upload to find similar faces from its library of fake people. You can even use filters to find specific types of faces!

Find out who the AI thinks you and your family look like.

Play here: www.generated.photos/anonymizer

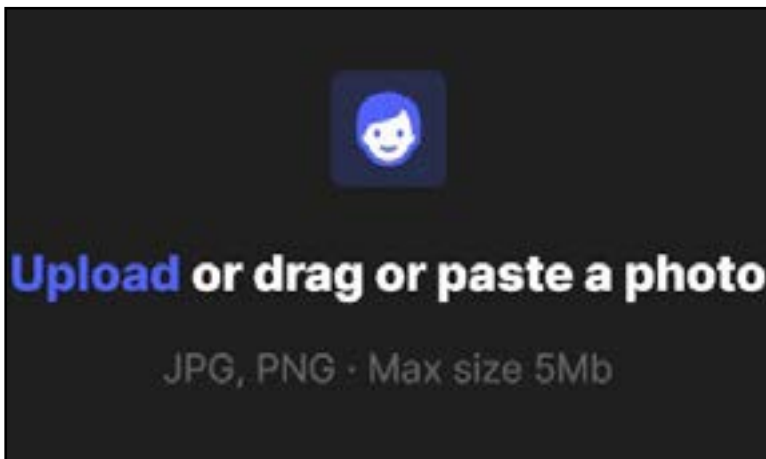


HOW IT WORKS

Go to the Anonymizer page above, and upload a photo.

To get the best results, you should upload a clear photo of your face looking straight forward.

Make sure there is only person in the photo, and that you have permission to use the photo.



A test photo (top left image just here ->) came up with 20 faces the AI thought were similar. Here's a sample of five of them.

You can even try this another way. If you go to: www.generated.photos/faces then you can go through over 2.6 million fake faces, using filters to search for specific types.

Remember, none of these people are real, and they are 100% created by an AI. Do you think some of these look odd?



That is called the 'uncanny valley', where a computer generated person is so close to looking human but just isn't right. You might be able to tell from the eyes or hair that they aren't real.

If you look at a big group of them together then you might see the same eyes, same shape mouth etc. How many similar features can you spot?

Play with Anonymizer here:

generated.photos/anonymizer

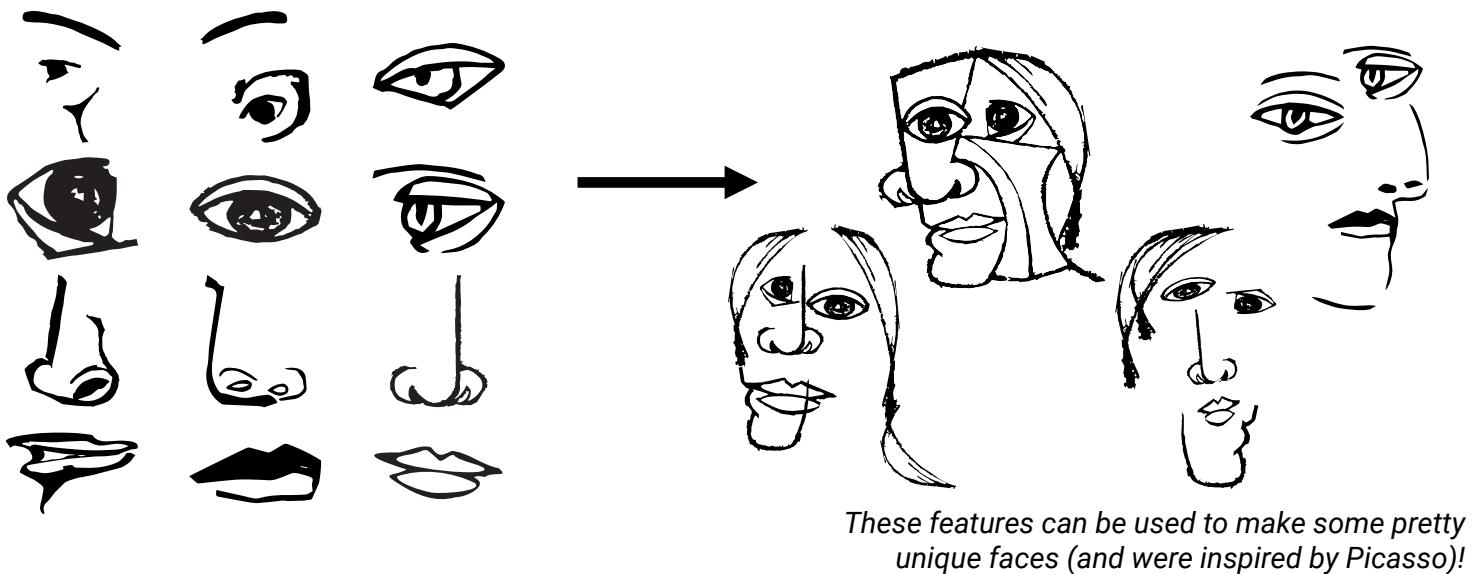
Intro to Boolean Face Builder #1

HOW IT WORKS

This activity is Part One of a three-part activity that uses facial features and Boolean Operators.

So what are Boolean Operators?

They are special words that help us get better answers when we use search engines like Google or Bing, or when we search on a computer or smartphone.



The three main Boolean Operators are **AND**, **OR**, and **NOT**. Here is how they can be used;

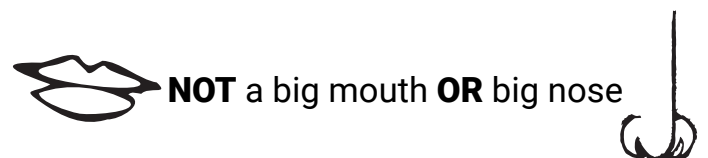
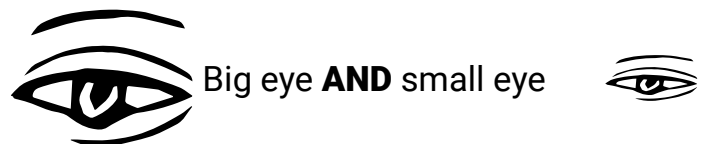
AND - "I'd like some salt **AND** vinegar crisps"
(crisps that have both salt **AND** vinegar)

OR - "Do you want to play Minecraft **OR** Fortnite?"
(we can only play one **OR** the other today)

NOT - "I like school, but **NOT** homework"
(I do **NOT** like doing my homework)

NOT and **OR** are often used together as "**OR**" isn't very useful on its own in this game - "**NOT** apple juice **OR** grapefruit juice. I would like orange juice please." (I want to say no to more than one thing)

EXAMPLES



So now you know what a Boolean Operator is, let's take a look at how you will be using them to complete our challenge.

Intro to Boolean Face Builder #1

THE ACTIVITY

In this activity the challenge is to figure out which face we're describing. We will give you a description using Boolean Operators and show you a group of faces with similar facial features, and you need to pick the one that we're describing.

FACIAL FEATURES

Most faces have hair, two eyes, a nose, and a mouth, all placed on a head, but not everyone's facial features are the same shape or size.

Some people have short hair, others have long noses, and some people have wide mouths... this is what makes us all look different and interesting!

If we described a face by saying two eyes AND one nose, then you would struggle to pick the right face from the group because we haven't given you a lot of detail.

In this activity, we are also going to describe the size of the facial features to give you more clues about the face we've chosen. Here are some ways to describe the face below.

DESCRIPTION 1

One big eye
AND
one small eye
AND
a small mouth.
NOT
small hair
OR
small nose



DESCRIPTION 2

One big eye
AND NOT
one big eye
OR
big mouth.

Big hair
AND
a big nose

These descriptions rule out any face with two big eyes or two small eyes. It also says the face has a big nose, a small mouth, and big hair, so you can rule out faces that don't have these.

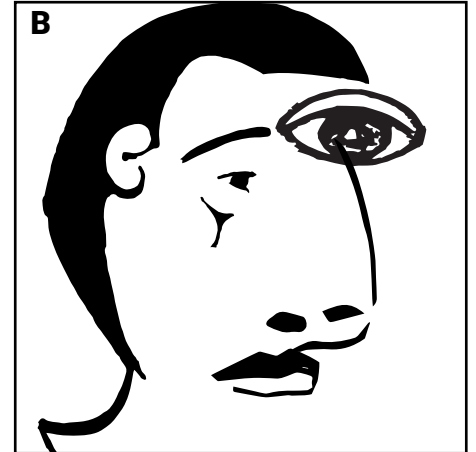
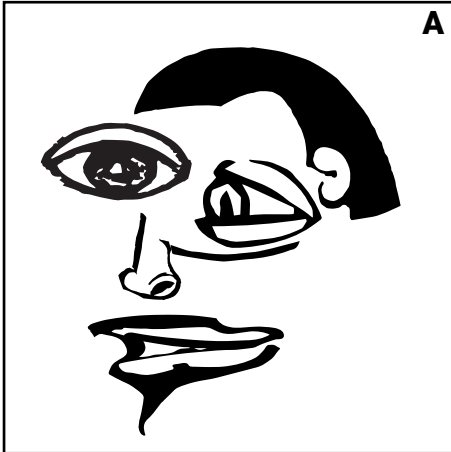


So now you know what a Boolean Operator is, what the facial features look like, and how they can be described, it's time to have a go!

Let's see if you can figure out which faces we've described on pages 10 and 11!

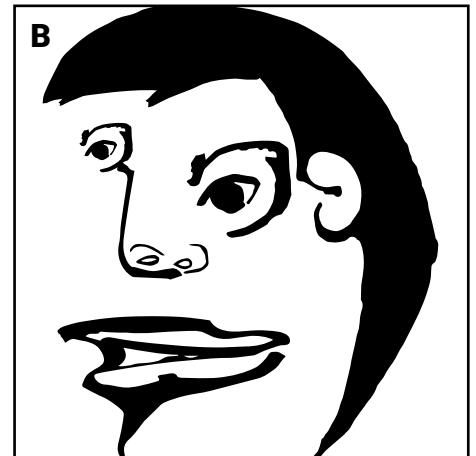
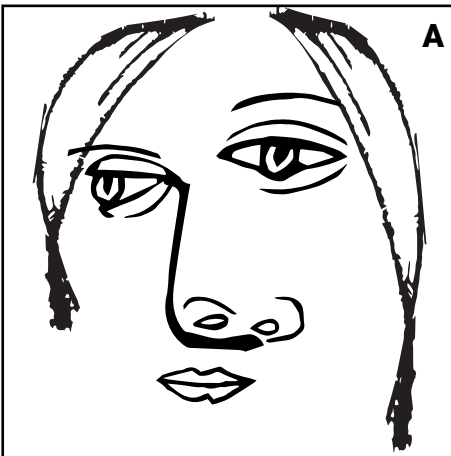
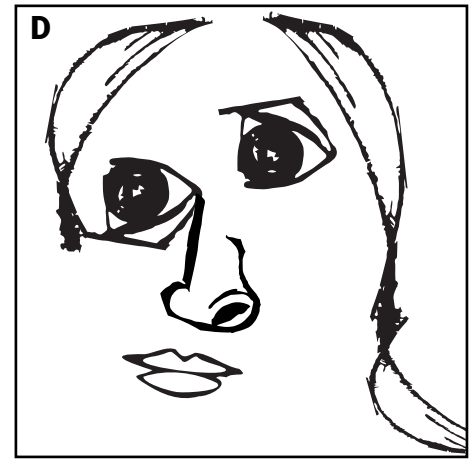
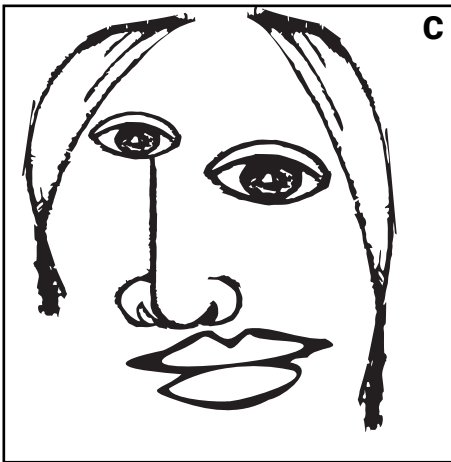


Boolean Face Builder #1



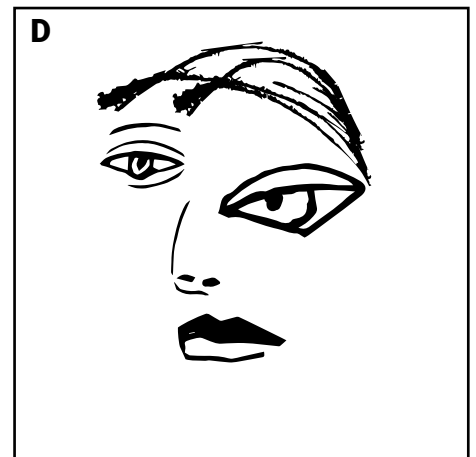
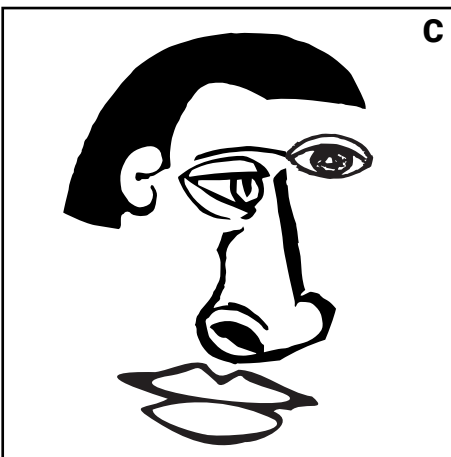
DESCRIPTION 1

Two big eyes
AND
a big mouth
AND
a small nose
AND NOT
big hair.

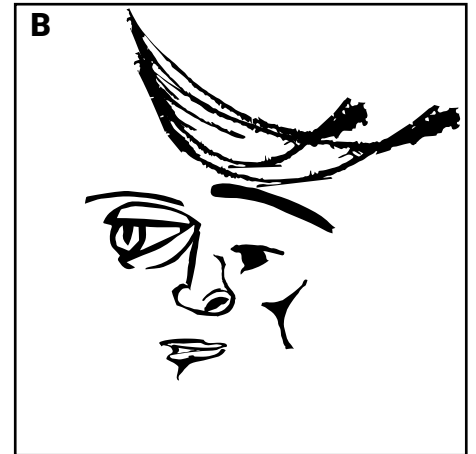
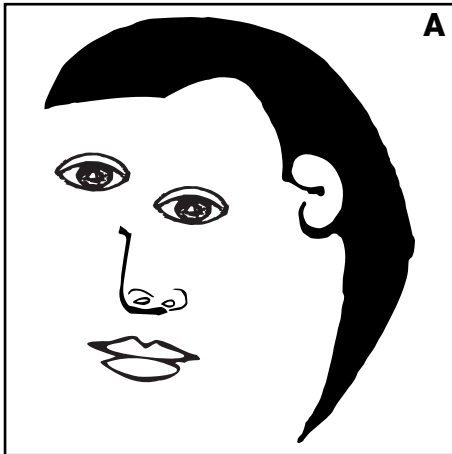


DESCRIPTION 2

One big eye
AND NOT
one big eye
OR
big hair.
A small nose
AND
a small mouth.



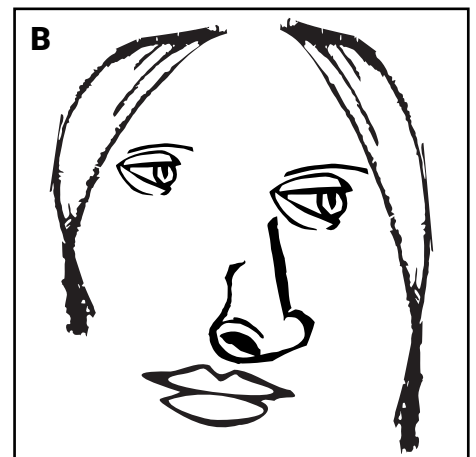
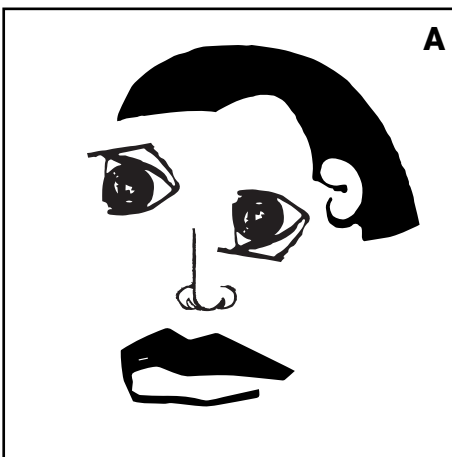
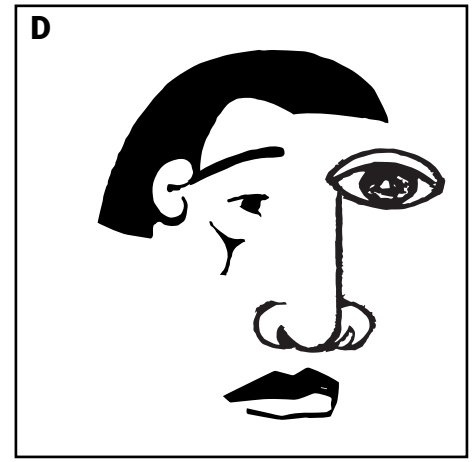
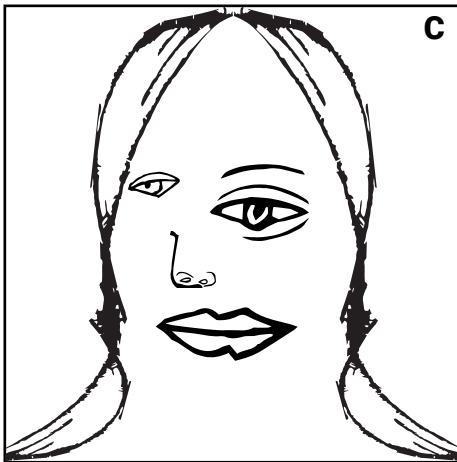
Boolean Face Builder #1



DESCRIPTION 3

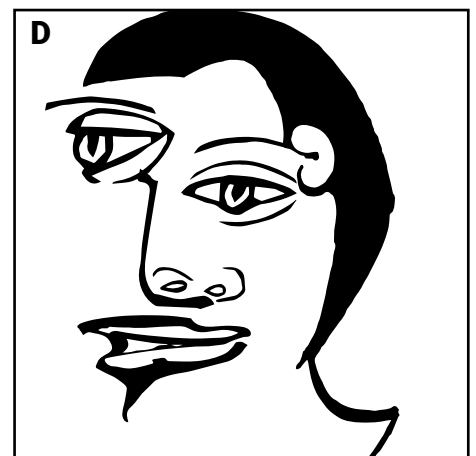
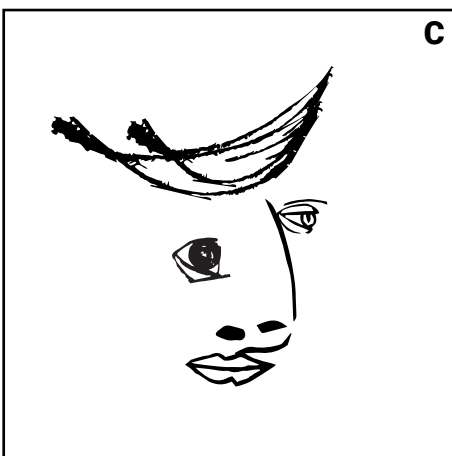
One big eye
AND NOT
one big eye.

Big hair
AND
a big mouth
AND NOT
a big nose.



DESCRIPTION 4

Big nose
AND NOT
two big eyes
OR
big hair
OR
big mouth.



Intro to Boolean Face Builder #2

HOW IT WORKS

This activity is Part Two of a three-part activity that uses facial features and Boolean Operators.

In the last activity we gave you a description of a face using Boolean Operators, and you had to figure out which face we were describing from a group of faces. This time you're in charge, so it's your turn to build unique faces and challenge your friends and family to figure out which one you've chosen!

Remember, the main three Boolean Operators are **AND**, **OR**, and **NOT**.

As an added challenge for your friends and family, you can change how you describe the facial features. For example -

Big eye

is the same as

NOT small eye

Short hair

is the same as

NOT long hair

Small mouth AND short nose

is the same as

NOT big mouth OR long nose

Try to use both ways of describing facial features to add an extra challenge.

Pages 13-15 are filled with hair, eyes, noses, and mouths. There are big and small ones for each facial feature...everything you need to make unique faces!

Cut all of the features out (ask an adult for help!) and try to make a few interesting faces.

Try making three or four faces and picking your favourite one.

Don't tell anyone which one you've picked, so they have to guess from your description.

Remember to use Boolean Operators to describe all of the features (hair, eyes, nose, and mouth), and don't forget to mention the size of the feature (big eye, small nose etc.).

Make sure the faces are different enough that they can figure it out, but not so different that it is easy to guess. You can test this by reading your description and making sure it matches only one of the faces.

Write your description like this

a size feature

Boolean Operator

a size feature

...

EXAMPLE

a big eye

AND

a small eye

AND

a small mouth

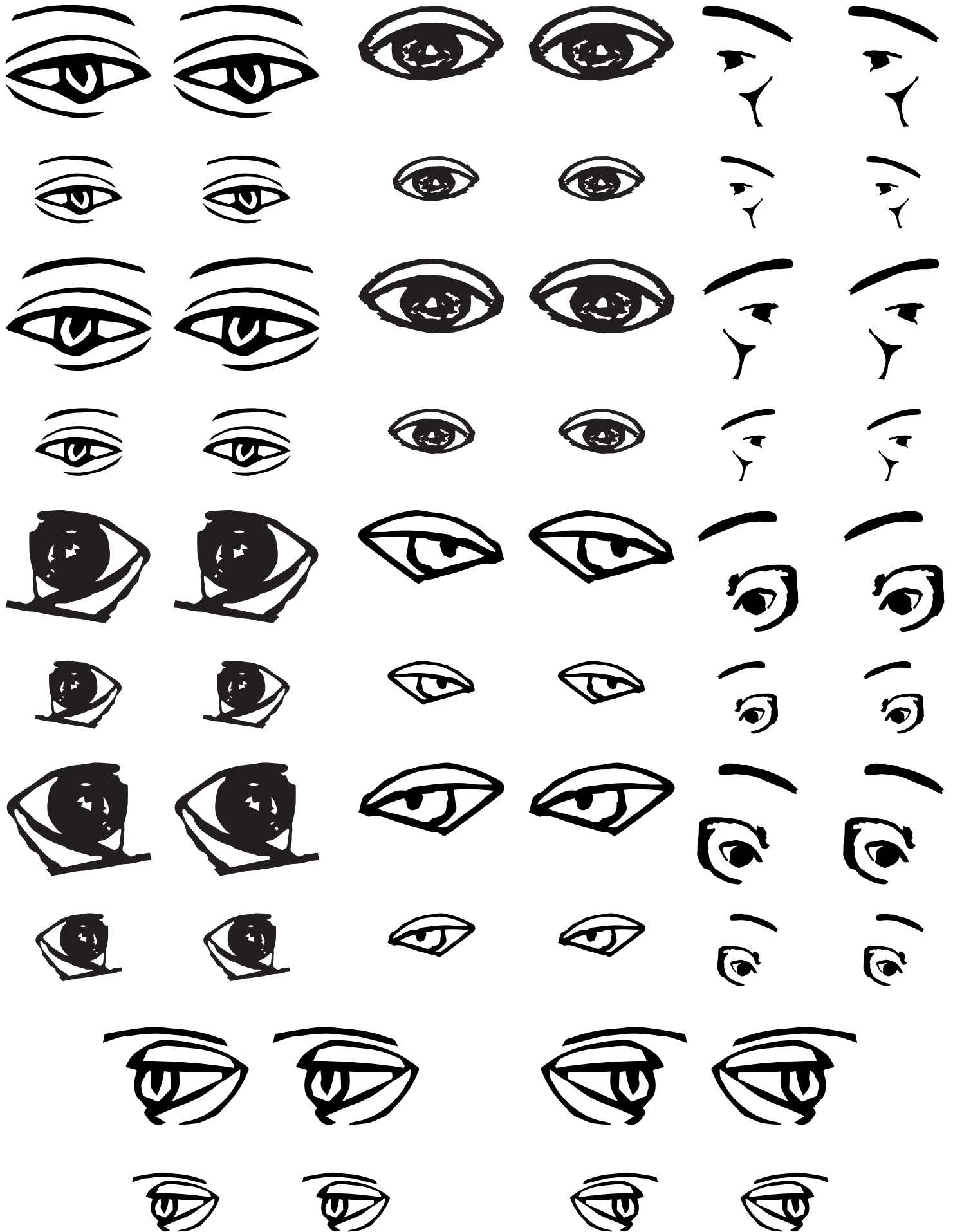
AND NOT

a big nose

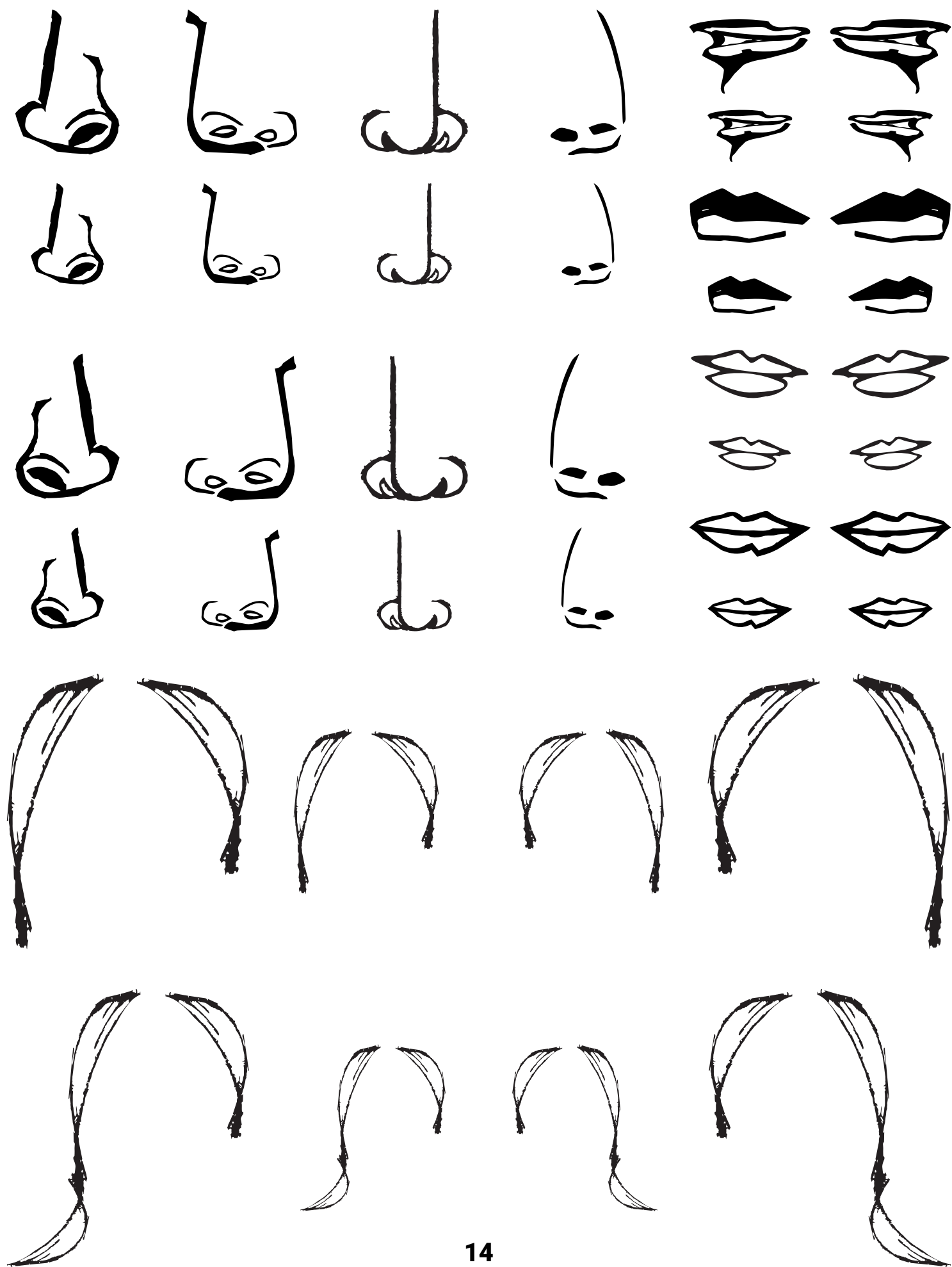
OR

big hair

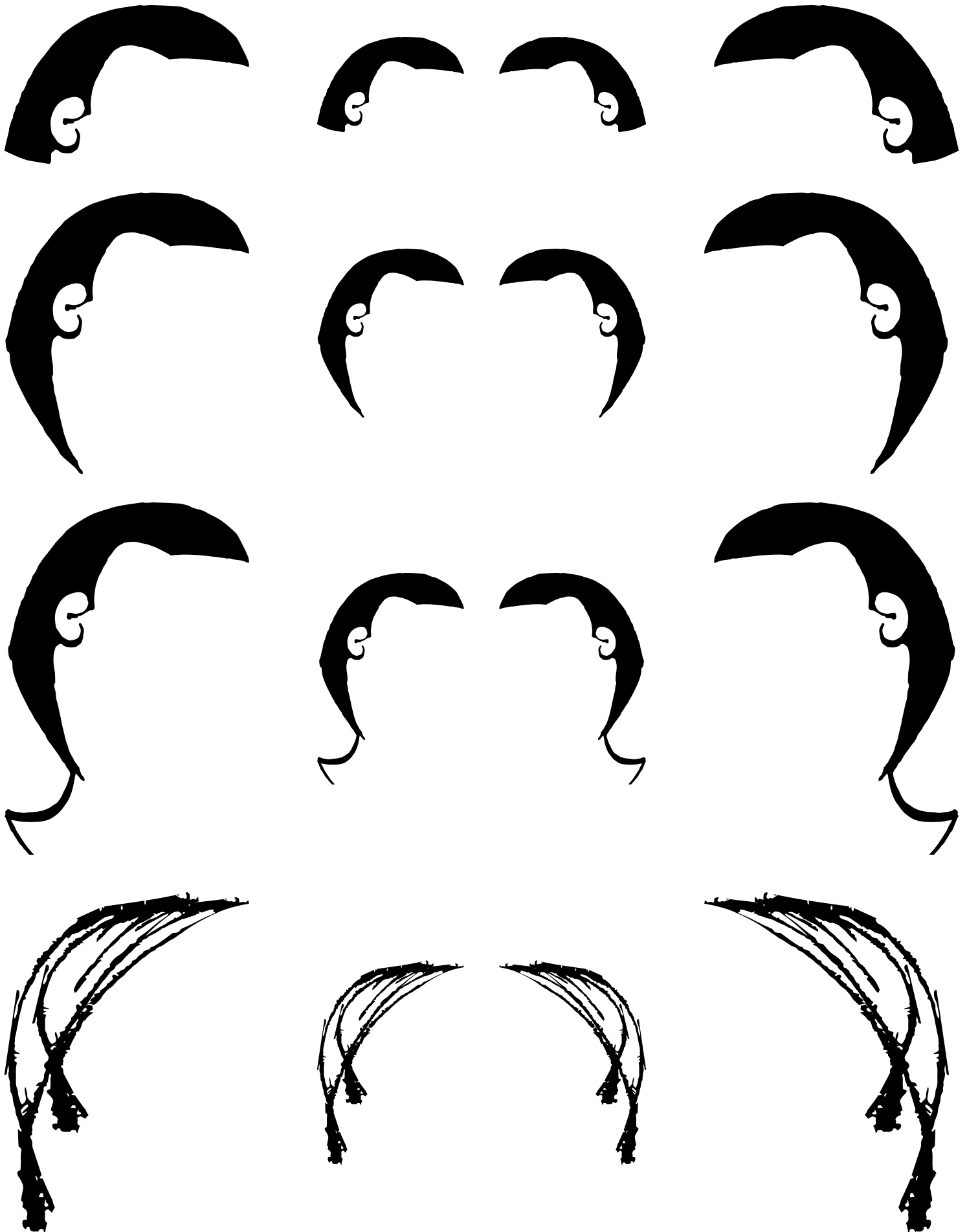
Boolean Face Builder #2



Boolean Face Builder #2



Boolean Face Builder #2



Intro to Boolean Face Builder #3

HOW IT WORKS

This activity is the last part of a three-part activity that uses facial features and Boolean Operators - **PLEASE PRINT PAGES 13 - 15 TO DO THIS ACTIVITY.**

In the first activity we gave you a description of a face using Boolean Operators, and you had to figure out which face we were describing from a group of faces.

The second activity had you in charge of making the faces and descriptions, and challenging your friends and family to figure out which face you were describing.

BOTH FACES HAVE...



big hair
AND
two big eyes
AND NOT
a big nose
OR
a big mouth



...BUT LOOK UNIQUE!

In this activity you and a friend or family member share the descriptions below, and you each make a face out of the facial features from pages 13-15. Once you are finished, you can compare the faces to see what is similar and what is different!

DESCRIPTION 1

Big hair
AND
a small eye
AND
a big eye
AND NOT
a small nose
OR
a big mouth

DESCRIPTION 2

Small hair
AND
two small eyes
AND
a big nose
AND NOT
a big mouth

DESCRIPTION 3

Big hair
AND NOT
two small eyes
OR
a big nose
AND NOT
a small mouth

DESCRIPTION 4

Big hair
AND
a small eye
AND NOT
a small eye
AND
a small nose
AND NOT
a small mouth

How else could you describe these features better? Maybe if they had colour? You could say 'big brown eyes AND long black hair'...that's a much better description!

Now why don't you colour some of the features in and write some new descriptions that include the colours? Challenge your friends and family members using these new faces!

Intro to Low Poly Mask

HOW IT WORKS

This 'papercraft' mask can be printed, cut out, folded, and glued to make a wearable, customisable 'low poly mask'.

If you use pencils, pens, or paints, then you can customise the facial features (eyes, nose, mouth) in your own style!

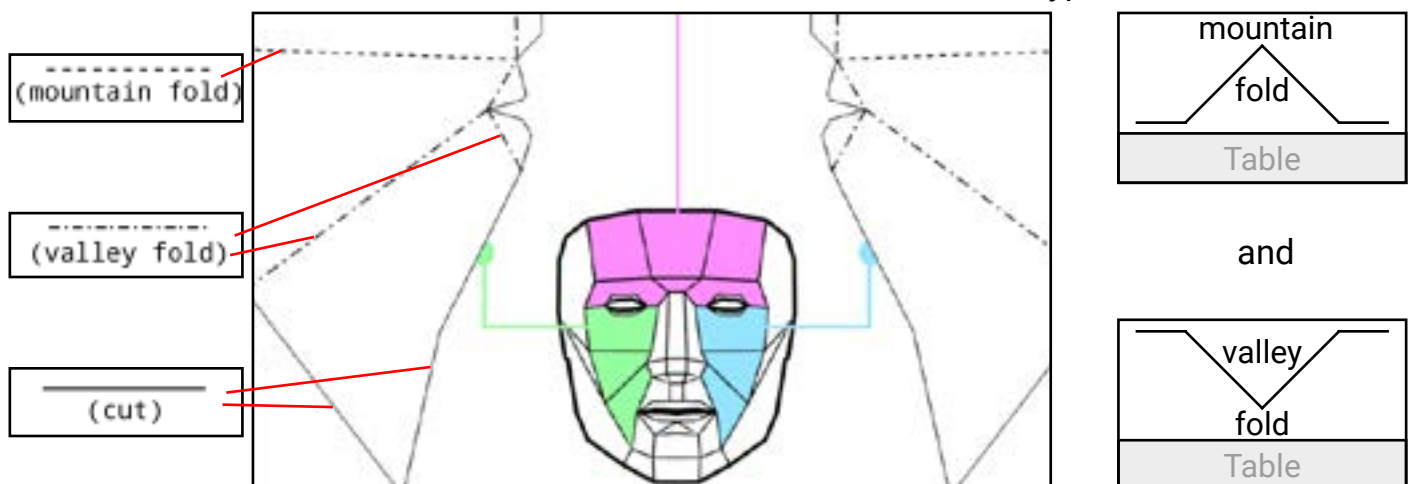
YOU WILL NEED - Scissors, glue, and pens / pencils / paints
You can always ask an adult to help with the cutting and gluing!



Start by printing the next three pages (pages 18 - 20), and laying them out in front of you.

There is a small mask on each page with bits coloured in. These bits point to parts of the mask that are on that same page - follow the coloured lines to see which part they relate to.

These sections will need to be cut out and folded, and there are two types of folds, which are;



If you want to decorate the mask then you should do this before cutting it out, as it is very difficult after! When you are ready, use the scissors to cut along the solid lines (____) on the first sheet.

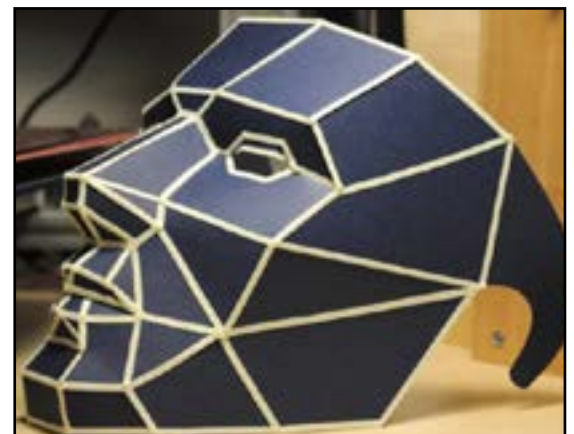
PRO TIP: write the facial feature on the back of each bit you cut out to make it easier to remember where they go!

Once it is all cut out, fold along each of the mountain (_ _ _) and valley (_ . . _) fold lines.

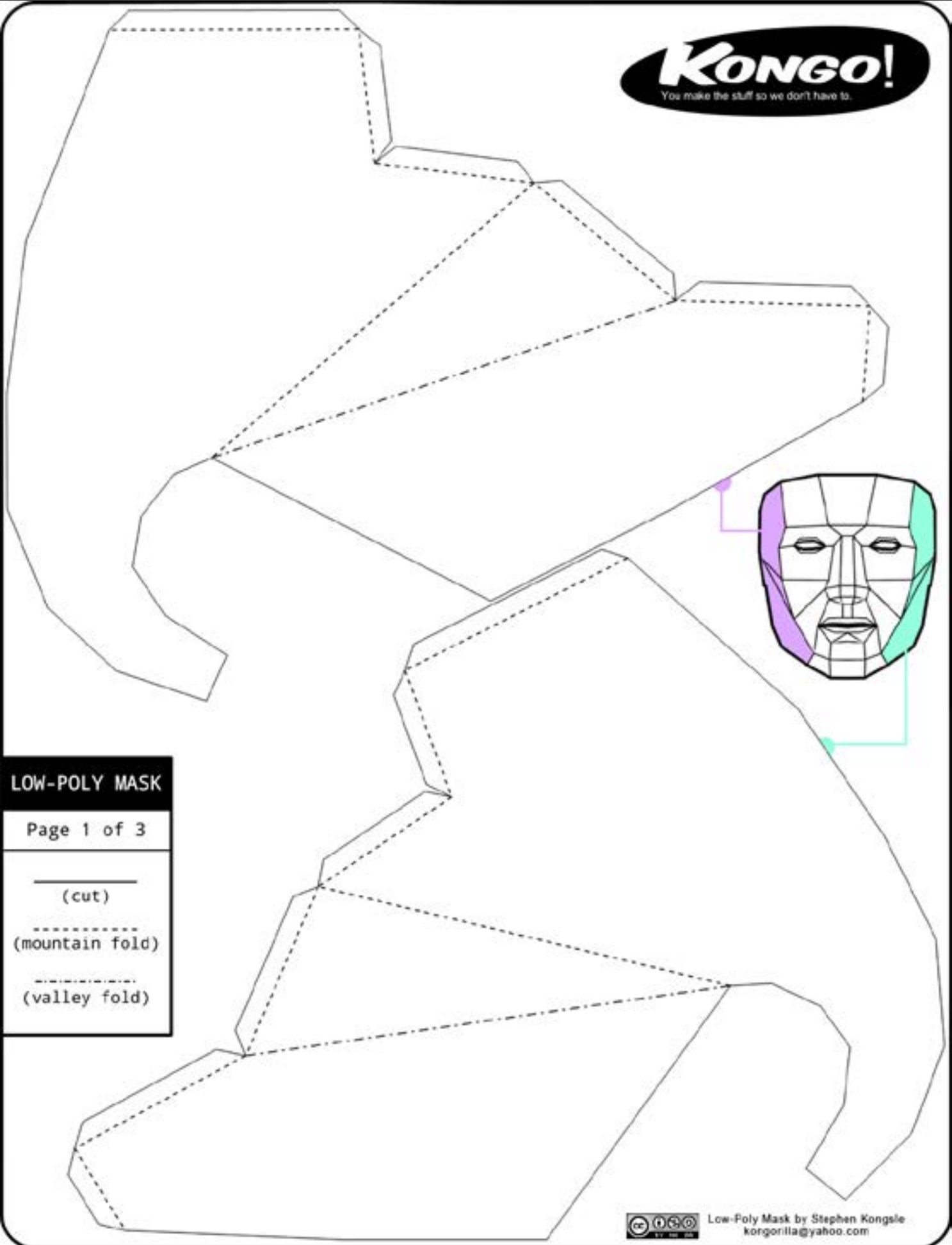
The thin tabs need to be glued to the other sections, so keep the little mask diagrams as a guide. This might be difficult to do alone, so have a friend or family member help with the cutting and gluing.

Some people add elastic bands to hold the mask on their face, so see if this is something you need to do.

You should now have a wearable mask in your own style!



Low Poly Mask



LOW-POLY MASK

Page 1 of 3

— (cut)

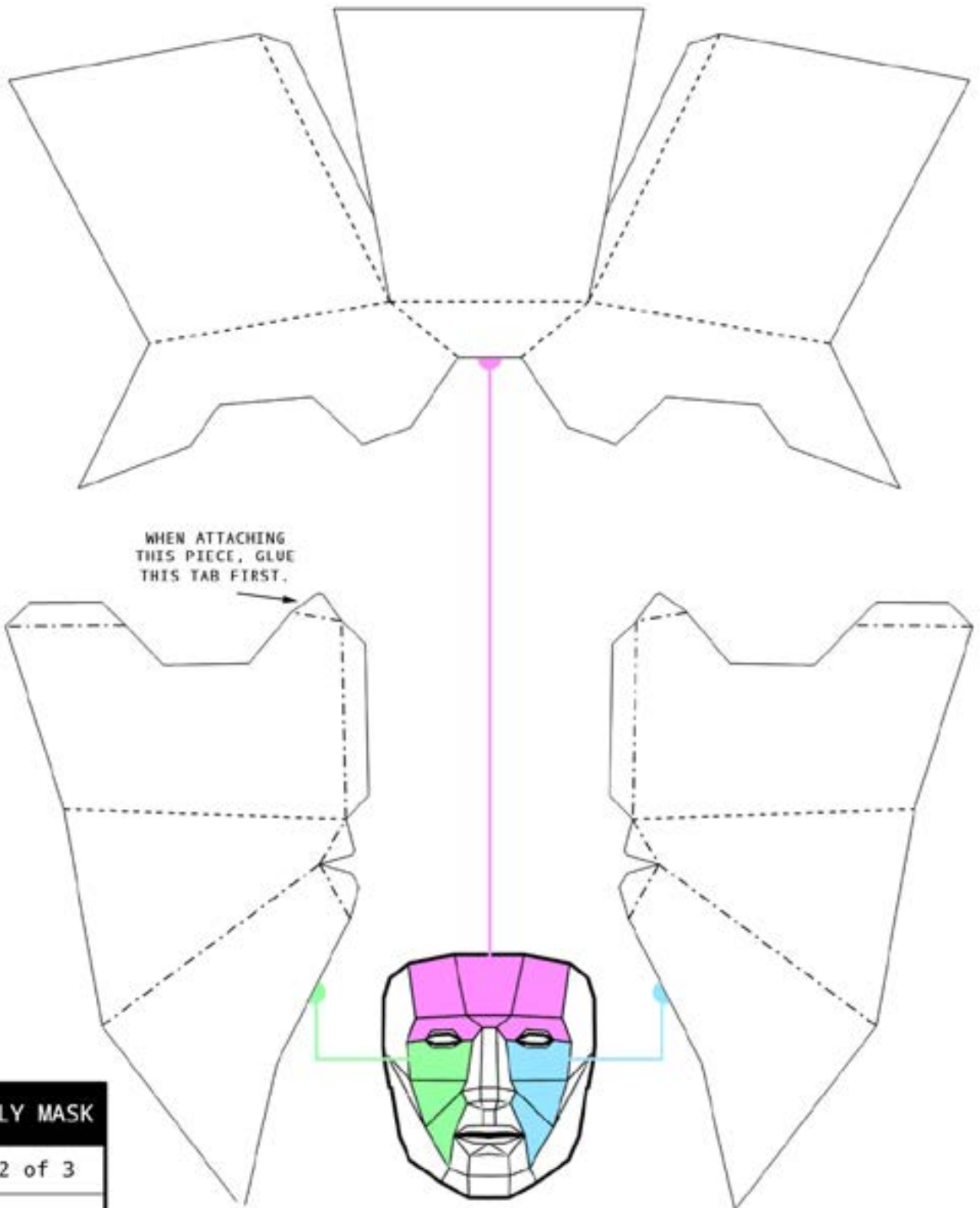
- - - (mountain fold)

- - - (valley fold)



Low-Poly Mask by Stephen Kongsle
kongorilla@yahoo.com

Low Poly Mask



LOW-POLY MASK

Page 2 of 3

(cut)

(mountain fold)

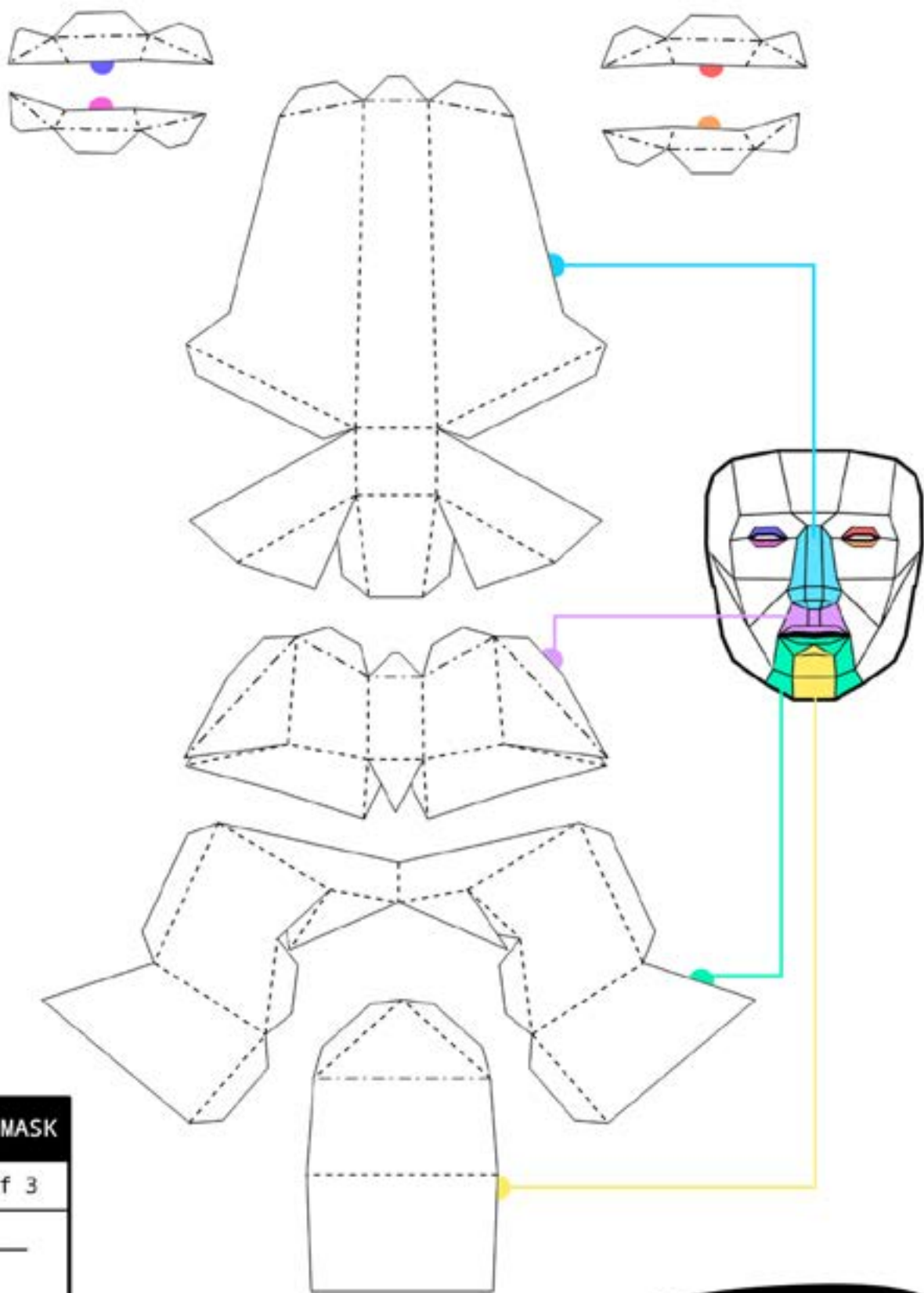
(valley fold)



Low-Poly Mask by Stephen Kongsle
kongorilla@yahoo.com

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Low Poly Mask



LOW-POLY MASK

Page 3 of 3

(cut)

(mountain fold)

(valley fold)



Low-Poly Mask by Stephen Kongsle
kongorilla@yahoo.com

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