

Day 3: Discovery!





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Marie and Pierre Curie Interactive Story Ideas!



Background scene:

Play this video in the background on a big screen, smart board, or laptop.

Fireflies at Night - Ambient

(<https://www.youtube.com/watch?v=ZgkLQkihoo8>)



Storytelling Role-Play: 1-5 sand dollars each

(2 Students to help cut out props and 6 students to role play)

Choose 3 girl students and 3 boy students to portray Marie, Pierre, the delivery worker, an irritated member of the science committee and student fireflies. Let students listen for their part and act out what is happening in the story.



New word: 1-5 sand dollars

Denied: When something is denied, it means it's not allowed or not given to you. When Marie was denied the prize, it meant she didn't get permission. She was denied the right to higher education and a job earlier. *Remind the students that they can earn a sand dollar if they tell you at the end of the story what the new word means. If they get it wrong remind them of the definition and have them try again in a few minutes.

Day 3: Marie and Pierre Curie

Marie and Pierre work together in the lab. When it is time for her to go home to Poland. Pierre wishes she would stay.

It is July, 1895, and they are getting married in a simple ceremony. Marie asks for a sensible, dark wedding dress so she can wear it to the lab. (Navy blue dress prompt, Marie wears the wedding dress). They ride their bicycles (Bicycle prompt, both ride on bicycles and wave) all across the French countryside. They enjoy working together in a little garden shed that they have converted to be their science lab. They run to their lab like children running towards a giant slide.

Another scientist, named Henri, has discovered an element called Uranium and it makes X-rays. Marie wants to know exactly how something from a rock can help people see through skin! Marie has an idea! The couple order TONS of rocks from an area that has uranium.

“Here’s your order of...erm...dusty rocks?” asks the man who has carried the load all the way from what is now the Czech Republic. (Sack prompt, hoist the sack over your shoulder and pant).

Pierre and Marie look at the giant brown sack, still dusty and mixed with prickly pine needles. They jump up and down with excitement.



Questions/Reading discussion: 1-5 sand dollars
(Students can earn a sand dollar for discussion participation)

Ask: What is their lab like?

Example: It’s a gardening shed.

Ask: What do they want to study?

Example: They want to explore why some rocks glow and give out rays.

Day 3: Marie and Pierre Curie

The next two years are very hard work. They shovel the huge loads of rocks (**Shovel prompt, shovel big loads and grunt**), then separate the pine needles and dirt. (**Rocks and pine needle prompt. Dump it all together and then sift it to put into the pot**) Marie heats and stirs the rocks in a pot (**Cauldron prop, stir the mixture**) with a rod as tall as her to separate the materials. Pierre helps.

It is July 1889 when their hard work pays off. They discover a brand new element that produces those rays! Marie names it polonium, in loving memory of Poland.

Later that year, the couple discovers another element that glows. They name it radium, using the Latin word 'ray' for the light it produces. They call elements with this property radioactive. In 1903, both she and Pierre win the Nobel Peace Prize! The science committee frowns and garrumphs about recognizing a woman, but Pierre won't take no for an answer.

More than the award, Marie and Pierre love their new element. In the middle of the night, they creep hand in hand into the shed to gaze at their glowy, beautiful radium. It looks like earthly stars and fairy lights. (**Firefly prompt, flutter around like a merrily dancing, glowy light speck**). They carry it everywhere with them in their coat pocket. (**Vial prompt, tuck it in your pocket and smile.**)



Questions/Reading discussion: 1-5 sand dollars

(Students can earn a sand dollar for discussion participation)

Ask: **What did Marie and Pierre discover?**

Example: **Two new elements, polonium and radium. They glowed!**

Cut out this sack to try to separate=
the ore and the pine needles.



Cut out the ore and pine
needles for Marie and Pierre
to separate.



Delivery worker: Carry the heavy sack like Santa Claus carries toys on his shoulder. It is heavy. Put it down and pant. Be confused when Marie and Pierre jump up and down.

Marie and Pierre:
Sort the pine needles from the rocks and the ore.

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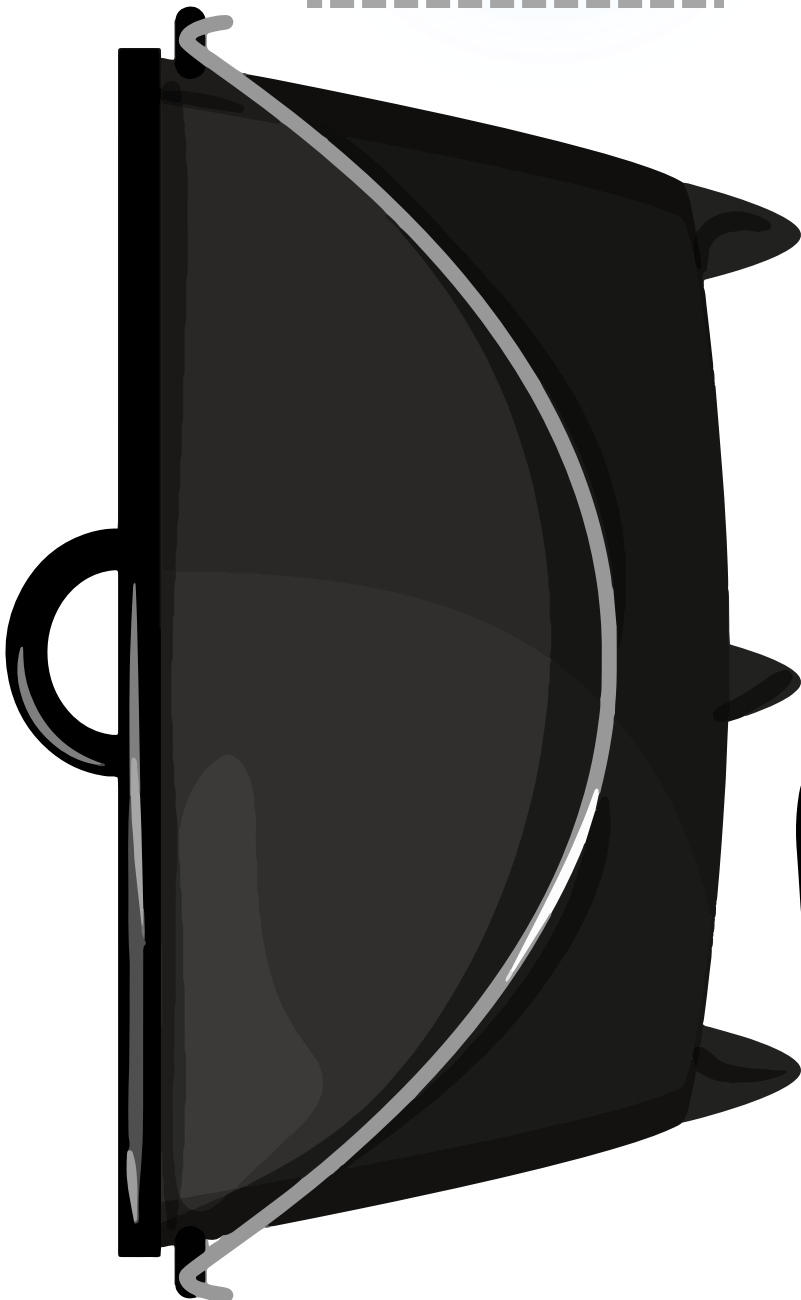
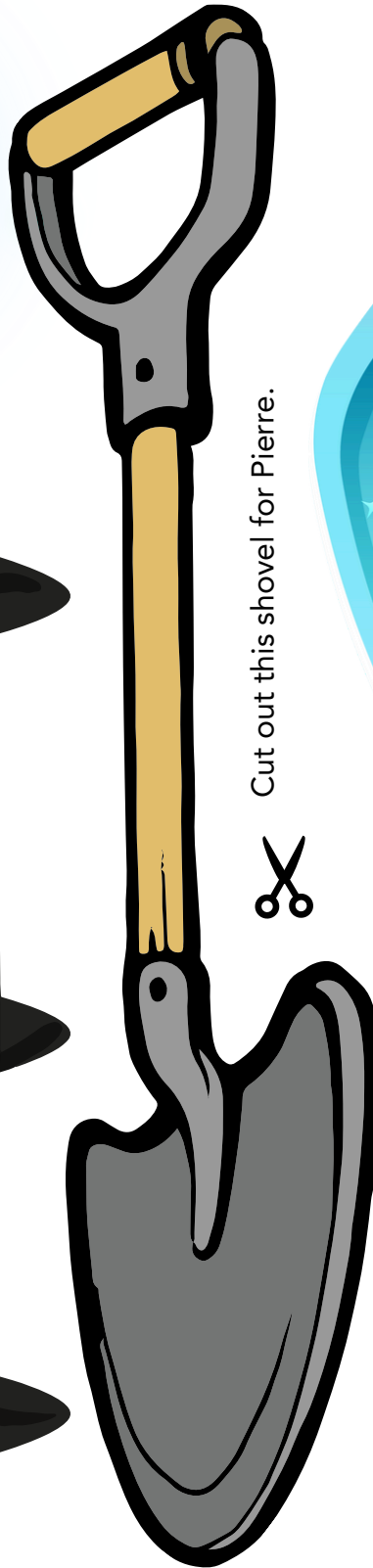
Cut out these materials for the lab and let students be fireflies at the end.



Cut out this vial of radium for the Curies to carry with them everywhere.



Cut out this shovel for Pierre.



Marie: Finally you have radium! Tuck this vial in your pocket.

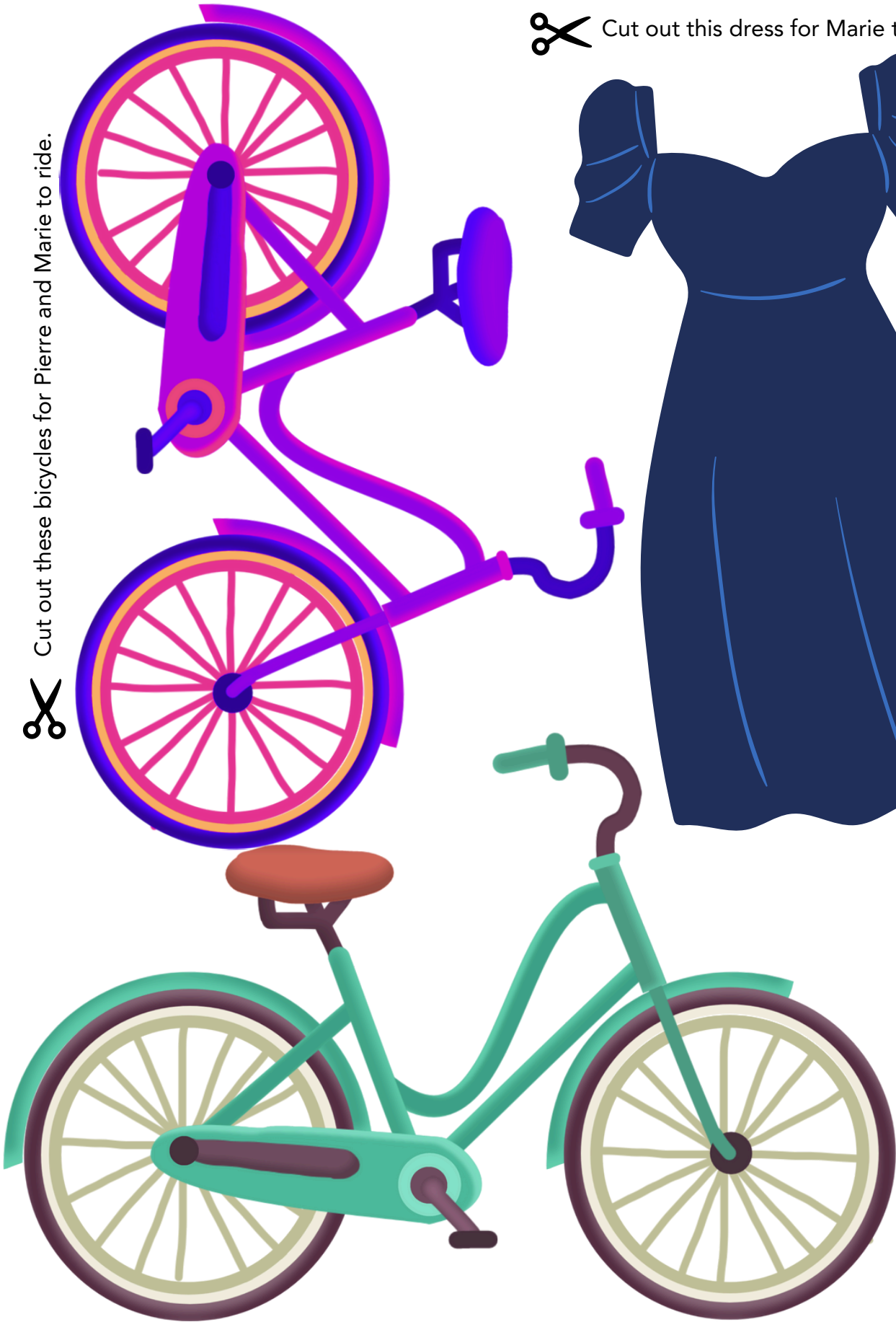
Student firefly:
Dance and twirl
around as Marie and
Pierre watch. Glow!

Marie: Stand and stir this
cauldron full of the ore.
It is heavy!

Pierre: Use this
shovel to lift
heavy loads of ore
and pour them
into the cauldron.

Student firefly:
Dance and twirl
around as
Marie and
Pierre watch.
Glow!

✂ Cut out these bicycles for Pierre and Marie to ride.



✂ Cut out this dress for Marie to wear.



Marie: Walk
down an
imaginary aisle
wearing your
very sensible
dress and then
run to the lab.

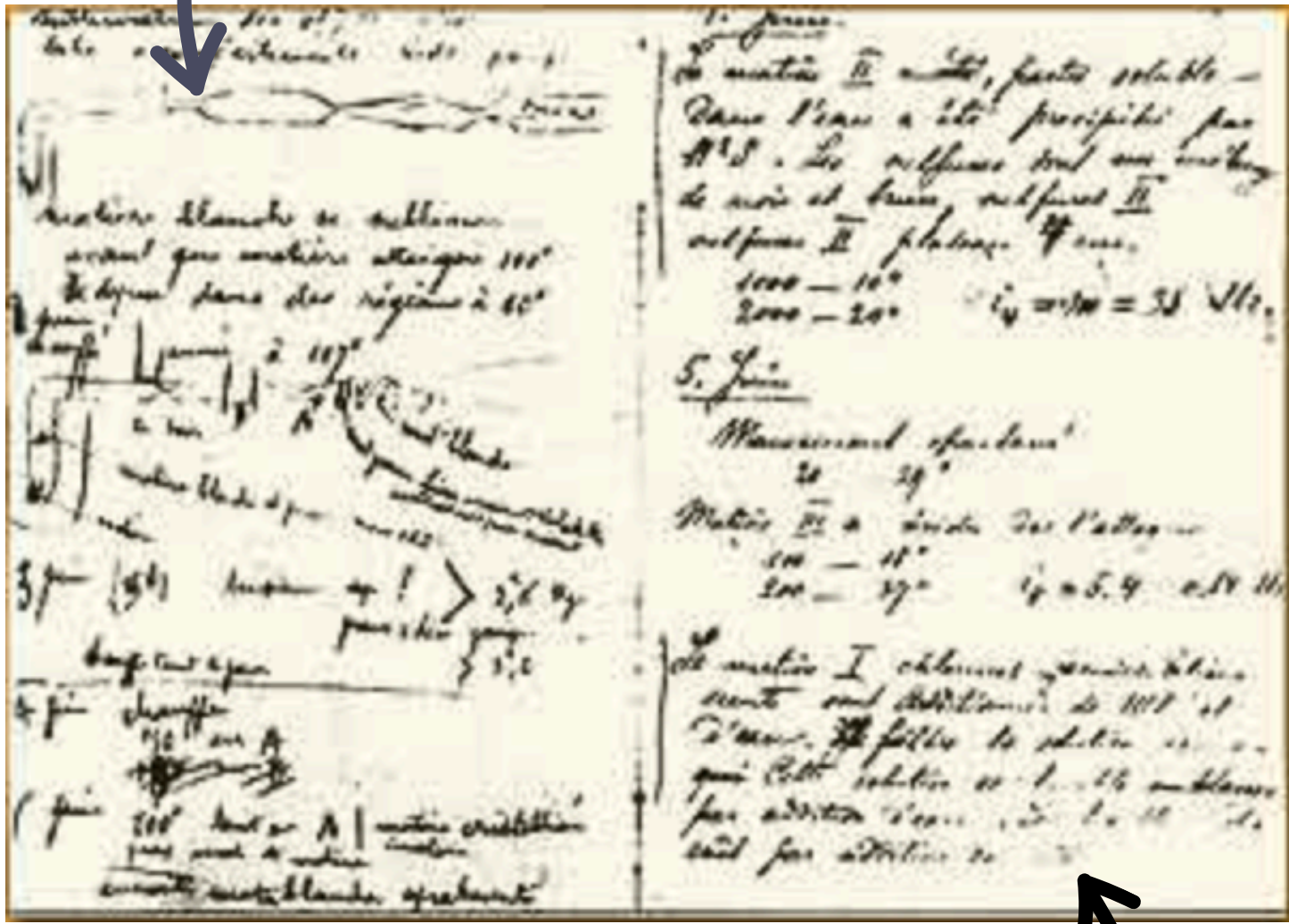
Marie and Pierre:
Ride your bicycles
through the beautiful
French countryside.
Stop frequently to
look at flowers and
animals. Wave!

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Marie and Pierre worked together all the time. Their notebooks show their love for their work. Sometimes, Marie writes upside down. Sometimes, they both write in the same notebooks! That's wonderful, and that's okay!

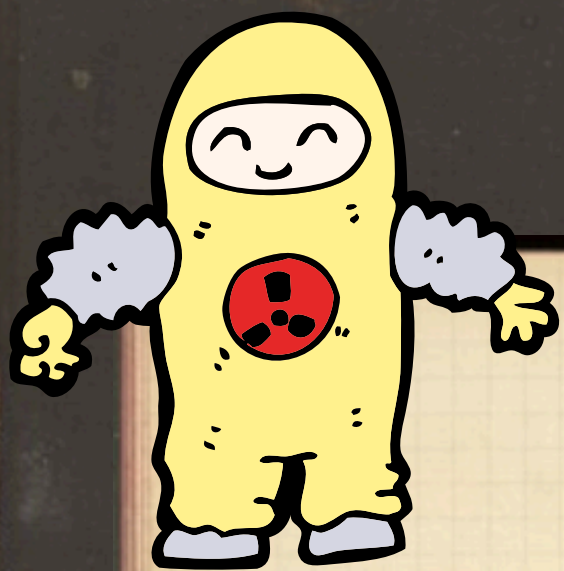


Pierre is writing about the way to change a solid directly to a vapor.



Marie is writing about how to change the structure of a raw material! Photo courtesy: ACJC

This is Marie's notebook. It is still radioactive to this day, and to see it, people need to wear special protective clothes.



Chlorure de dosage

D distance rad. fonte 4.6 cm.

avec aluminium 0.52 mm. à la distance d = 4.3 cm.

100	16.6	17.6	18.0	100
	17.6	18.0	18.0	

avec source la substance d = 0.2 cm.

200	15.0	15.0	13.3	
	15.0	15.0	13.3	

avec Al. 0.01 mm.

d = 4.3 cm	500	17.6	17.4	16.8	Cylindre 4.1
	"	"	"	"	
	"	"	"	"	
d = 0.2 cm	500	14.1	14.0	13.8	14.0
	"	"	"	"	
	"	"	"	"	
	"	"	"	"	
d = 1.3 cm	500	15.0	15.2		Cylindre 1.1
	"	"	"		
	"	"	"		
d = 0.2	"	14.4	14.8		
	"	"	"		
	"	"	"		
d = 1.3	100	15.5	15.6		Al. 0.02 mm
	"	"	"		Cyl. cylindre 1.1
	"	"	"		
d = 0.2	200	18.0	17.7	17.9	
	"	"	"	"	
	"	"	"	"	

Chlorure 173 sublimé - 0.1994

28 octobre 1901