GREENROCK, KENTUCKY - IN THE HOLLOWS OF DARKEST COUNTY AT THE MOUTH OF GREENMAW CAVE, A RECENT FIND BY PROFESSOR TONY FARAONE, HE AND A TEAM OF RESEARCHERS ARE CURRENTLY EXPLORING IT, WHEN SUDDENLY...

SOMETHING HAS GONE TERRIBLY WRONG, BUT IT APPEARS ONE MEMBER OF THE TEAM, BILLY WALLACE, WAS ABLE TO ESCAPE.

Aaaaaah!

{}GHURG{}

What?!

Hold On!

Noooooo!

Help!
Fortunately, Park Ranger Allysa Torres is out on patrol close enough to hear Billy's cry for help!

Stay where you are, I'm coming to you!

Help!

Hurry! I think there's a lot of people hurt!

Looks like today will be interesting after all.

OK, what happened?

I'm not sure! We were exploring the cave system, then we heard this ... noise. It sort of sounded like a growl.

Then our lanterns went out and the cave started shaking and then...

I don't know, we all just started running and got separated.

How many people are in your group?

Five.
Hey, I need backup, five people with possible injuries. Some could be severe.

Hey, I need backup, five people with possible injuries. Some could be severe.

You said people were hurt?

Yeah, some are in bad shape, lots of bleeding!

Alright, I need to radio for help. You said the cave was shaking? I didn't feel anything out here.

It was just for a few seconds, but it was scary. Stalag—whatchamacallits falling and stuff

Copy that, sending out a team to help, might take a little bit. Drop a beacon so we can find you.

Rena is just inside, something happened to her leg. Come on!

Right behind you.

Thank god! I thought I was gonna bleed out!

Done. I'm heading in for triage and first aid.

Copy, we see the signal. We're en route.
It’s ok, we’re going to patch you up. What happened?

It’s the darnedest thing. I was running with Billy to get to the entrance when something grabbed me right at the ankle.

I fell, and had my knife out, and of all the luck ... I got myself in the leg when I fell.

Something ... grabbed you?

Ok, let’s look at that leg then.

That’s what it felt like, but it didn’t stick around apparently.

Aw, it’s nothin’

I’ll be the judge of that. There’s a lot of blood on those pants. We’ll need to cut the leg off.

What!? You’re not takin’ my darned leg!

I meant the leg of your pants.

Oh ...
Let's See What Happened...

RENA IS HAVING A HARD TIME REACHING HER LEG WOUND TO CORRECTLY APPLY DIRECT PRESSURE. ALYSSA TRIES APPLYING DIRECT PRESSURE TO THE WOUND, BUT IT'S STILL BLEEDING A LOT. DOES THIS INJURY NEED A TOURNIQUET?

YES

NO
Let's See What Happened...

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YES

NO

PRESSURE ISN'T ENOUGH, IT'S TOURNIQUET TIME.
HMM, I'D SAY WE NEED A TOURNIQUET.

THAT'S WHAT I SAID, BUT I DIDN'T HAVE ONE!
I'm telling you it's nothin! I've had worse scratches than this from my cat, Loretta!

Is Loretta a mountain lion?

Ha! No, just a big ol' barn cat.

Ok, this is going to hurt a bit.

Billy, just watch me so you can help out the others.
IF THE STRAP ISN'T TIGHT, THE REST OF THE TOURNIQUET WON'T WORK.

NEXT, YOU TWIST THIS PART HERE, IT'S CALLED A WINDLASS. TIGHTEN UNTIL THE BLEEDING STOPS.

THEN YOU SECURE IT IN THE CLIPS.

STRAP

OWN!
DAGNABBIT!

OWNWWW! YOU SAID YOU WEREN'T GONNA CUT MY LEG OFF!

CLIP

SORRY ABOUT THAT.

THEN MARK THE TIME.

TIME: 10:03
GOT IT. I'LL GO SEE IF HARRY NEEDS HELP!

(DEEP BREATH)
HIISSSSS...

YOU LEARN THAT FROM LORETTA?

HA, HAHA!

HA HA HA HA HA HA

YOU SAID THERE WERE OTHERS?

<GROAN>

UH, YEAH. FURTHER DOWN THE TUNNEL.

UM, OK RENA. WE'LL COME BACK FOR YOU WHEN WE'VE SEEN TO THE OTHERS.
I THINK I GOT IT!

MMM, I'M NOT SO SURE. LOOKS LIKE HE'S STILL BLEEDING. LET'S SEE HOW TO FIX IT.
What Problems Do You See?

SELECT ALL THAT APPLY

- Wound needs gauze packing before tourniquet is applied
- No indentation in skin
- Time strap holding windlass in wrong position
- Excess velcro strap suggests it’s not pulled tight enough
- Windlass rod is slack and lacks tension

CHECK ANSWERS
What Problems Do You See?

Select all that apply

- Wound needs gauze packing before tourniquet is applied
- No indentation in skin
- Time strap holding windlass in wrong position
- Excess velcro strap suggests it's not pulled tight enough
- Windlass rod is slack and lacks tension

Check answers
What Problems Do You See?

SELECT ALL THAT APPLY

**Correct Answers**

- NO INDENTATION IN SKIN
- EXCESS VELCRO STRAP SUGGESTS IT'S NOT PULLED TIGHT ENOUGH
- WINDLASS ROD IS SLACK AND LACKS TENSION

**Your Answers**

- WOUND NEEDS GAUZE PACKING BEFORE TOURNIQUET IS APPLIED
- EXCESS VELCRO STRAP SUGGESTS IT'S NOT PULLED TIGHT ENOUGH
- WINDLASS ROD IS SLACK AND LACKS TENSION

CONTINUE →
Pulling the strap tight and re-tightening the windlass fixed the problem.

Tighten strap

Twist and secure windlass
Alright, Mr...

Name's Harry Plunkett.

What happened?

I was trying to find my lantern. I dropped it when it went out...

My hand went into that hole over there, and well, look at it for yourself!

What she sees doesn't look like any normal cave formation.

(Sigh) Alright Harry. We'll be back as soon as possible. Just stay put.

Hey Ms. Torres, another one's down here!

That is strange. Look at this Billy... Billy?

Be right there!
UMMM...

I GOT BIT BY A PLANT ... WELL, NOT BIT EXACTLY.

I WASN'T WATCHING MY STEP. SOMEHOW I GOT TANGLED UP AND THESE VINES JUST SNAPPED SHUT!

LIKE A VENUS FLY TRAP ONLY FOR PEOPLE!

ER, YES, SOMETHING LIKE THAT. VERY STRANGE.

I WAS TRYING TO GET A CLOSER LOOK AT THIS!

I TOOK OFF THE PANT LEG, JUST LIKE YOU DID FOR RENA! LOOKS PRETTY GNARLY.

GREAT, SAVE THAT IN CASE WE NEED IT LATER.
WELL, LOOKS LIKE YOU APPLIED THE TOURNIQUET CORRECTLY, EXCEPT FOR ONE SMALL PROBLEM ...

A TOURNIQUET ISN'T EFFECTIVE IF IT'S PLACED ON A JOINT.

OH DANG IT!
TAP WHERE THE SECOND TOURNIQUET SHOULD GO.
REMEMBER, IT SHOULD BE PROXIMAL TO THE FIRST Tourniquet.

TAP WHERE THE SECOND Tourniquet SHOULD GO.
Adding a second tourniquet above the joint stopped the bleeding.

That did it.
Well, looks like you applied the tourniquet correctly, except for one small problem...

A tourniquet isn't effective if it's placed on a joint.

Oh dang it!

That did it.

Adding a second tourniquet above the joint stopped the bleeding.
OK, let's get him out of this contraption.

Uh oh...

There's a vine stuck to the tourniquet!

How do vines grow down here anyway? There's not enough light.

Excellent observation, young man.

I'm not a biologist, I'm an anthropologist.

I really want to know what these writings are... Never seen the like before.

Oww!

Let's put him down and see what's going on.
LOOKS LIKE THE STRAP GOT PULLED LOOSE.
When Do You Need to Check a Tourniquet?

[SELECT ALL THAT APPLY]

- NO NEED TO CHECK, JUST GET THEM TO SAFETY
- EVERY 5 MINUTES
- IF THE TEMPERATURE CHANGES
- ANY TIME A PATIENT IS MOVED
- IF THE PATIENT HAS ADJUSTED THE Tourniquet Because of Pain

CHECK ANSWERS
When Do You Need to Check a Tourniquet?

[SELECT ALL THAT APPLY]

- NO NEED TO CHECK, JUST GET THEM TO SAFETY
- EVERY 5 MINUTES
- IF THE TEMPERATURE CHANGES
- ANY TIME A PATIENT IS MOVED
- IF THE PATIENT HAS ADJUSTED THE TOURNIQUET BECAUSE OF PAIN

CHECK ANSWERS
Looks like the strap got pulled loose.

Correct Answers

- Every 5 minutes  ✔️
- Any time a patient is moved  ✔️
- If the patient has adjusted the tourniquet because of pain  ✔️

When Do You Need to Check a Tourniquet?

[Select all that apply]

Your Answers

- Every 5 minutes  ✔️
- If the temperature changes ✗

Continue →
Looks like the strap got pulled loose.

Tourniquets can get loose any time a patient moves.

Pulling the strap tight and re-tightening the windlass fixed the second tourniquet.
WHO...

JUST TESS, SHE WAS THE LEADER.

SHE SENT THE REST OF US BACK WHEN THE CAVE STARTED SHAKING.

OK BILLY, WE ... BILLY!

ALRIGHT DOCTOR, WHO ELSE IS LEFT?

THAT BOY.

WAAAAAAAAA AHEAD OF YA!
YOU MUST BE TESS, I THOUGHT THERE WAS ONLY ONE PERSON LEFT.

I HAVE NO IDEA WHO SHE IS, BUT SHE'S IN PRETTY BAD SHAPE.

SHE SEEMED TO NEED THE MOST HELP.

YOU'RE NOT LOOKING THAT GREAT EITHER.

NOT GREAT... I PROBABLY SHOULDN'T HAVE LOOSENED IT.
THEY'RE STILL BLEEDING, SO SOMETHING ISN'T RIGHT.
What is the Problem?

(SELECT BEST ANSWER)

- Tourniquet on wrong side of wound
- Tourniquet too close to wound
- Windlass not secure

They're still bleeding, so something isn't right.
You Fixed the Problem!

You’re in the “Stop Bleeding Business” and business is good!

- Tourniquet on wrong side of wound
- Tourniquet too close to wound
- Windlass not secure

It looks like it’s the windlass, notice it’s not locked in place.

Continue →
They're still bleeding, so something isn't right.

What is the problem?

(Select best answer)

- Tourniquet on wrong side of wound
- Tourniquet too close to wound
- Windlass not secure

Look again, it's proximal to the wound.
They're still bleeding, so something isn't right.

What is the problem?

Select best answer:

- Tourniquet on wrong side of wound
- Tourniquet too close to wound
- Windlass not secure

Look again, it's about 2 inches above the wound.
They're still bleeding, so something isn't right.

The windlass isn't secure in the clip.

Tightening and securing the windlass stopped the bleeding.

How's our friend in the corner doing?

I used Tony's trouser to stop leg, but it doesn't seem to be working!
OH BOY

YEAH, PART OF HER ARM IS ... GONE. AND I'M ALL OUT OF TOURNIQUETS!

YEP, I'M OUT TOO. WE'LL HAVE TO MAKE THAT WORK.
OH BOY

YEAH, PART OF HER ARM IS ... GONE. AND I'M ALL OUT OF TOURNIQUETS!

YEP, I'M OUT TOO. WE'LL HAVE TO MAKE THAT WORK.

Let's See What Happened ...

THIS IMPROVISED TOURNIQUET IS NOT ENOUGH. WHAT CAN BE DONE TO IMPROVE THE SITUATION?

RE-APPLY TOURNIQUET

DIRECT PRESSURE
OH BOY

Yeah, part of her arm is ... gone. And I'm all out of tourniquets!

YEP, I'M OUT TOO. WE'LL HAVE TO MAKE THAT WORK.

Let's See What Happened...

This improvised tourniquet is not enough. What can be done to improve the situation?

- Re-apply tourniquet
- Direct pressure

That will destroy any clotting that has already happened.
OH BOY

YEAH, PART OF HER ARM IS ... GONE. AND I'M ALL OUT OF Tourniquets!

YEP, I'M OUT TOO. WELL HAVE TO MAKE THAT WORK.

BILLY APPLIES DIRECT PRESSURE TO STOP THE BLEEDING.

OK, THAT'S HELPING FOR NOW, BUT WE DON'T HAVE MUCH TIME.
Hey, where'd Tess go?

Tess, that's the wrong way! We need to go back up!

Tess is no longer laying in the entryway, a trail of blood leads down a dark path.

Alyssa comes upon an unconscious Tess prone on the floor with her arms akimbo... almost as if something had dragged her.
WHAT HAPPENED HERE?

YOU'RE BLEEDING AGAIN.
Let's See What Happened...

She's bleeding, what do you do?

- Check the strap
- Check the windlass
Let's See What Happened...

She's bleeding, what do you do?

- Check the strap
- Check the windlass

The strap appears to be tight against the limb.
Let's See What Happened...

She's bleeding, what do you do?

Check the strap

Check the windlass

The windlass rod wasn't locked

Continue →
Fix the Problem

What should Alyssa do to stop the bleeding?

- Tighten the windlass
- Apply another tourniquet
- Elevate the limb

What happened here?

You're bleeding again.
You Fixed Part of the Problem

Don’t let it go to your head, there’s still plenty more to do.

Tighten the windlass

Apply another tourniquet

Elevate the limb

“What happened here?

You’re bleeding again.

Smart choice. Tightening the windlass helped, but they’re still bleeding.

Continue →
What happened here?

You’re bleeding again.

Fix the Problem

What should Alyssa do to stop the bleeding?

- Tighten the windlass
- Apply another tourniquet
- Elevate the limb

You do not have another tourniquet to apply.
Fix the Problem

What should Alyssa do to stop the bleeding?

- Tighten the windlass
- Apply another tourniquet
- Elevate the limb

You're bleeding again.

Elevating the limb will not help with this level of severe bleeding.
There's Still Bleeding

The windlass can’t get tight enough, what should we do next?

- Apply direct pressure
- Elevate leg

What happened here?

You're bleeding again.

Tightening the windlass still wasn't enough.
There's Still Bleeding

The windlass can't get tight enough, what should we do next?

Apply direct pressure

Elevate leg

That's not the best thing to do. Direct pressure will have a better effect.

What happened here?

You're bleeding again.

Tightening the windlass still wasn't enough.
You Fixed the Problem!

You're a bloody genius! Stay vigilant, who knows what unspeakable horrors lurk in the shadows...

Apply direct pressure

Elevate leg

Direct pressure is the best course of action here.

Continue ➔

What happened here?

You're bleeding again.

Tightening the windlass still wasn't enough.
WHAT HAPPENED HERE?

YOU'RE BLEEDING AGAIN.

TIGHTENING THE WINDLASS STILL WASN'T ENOUGH.

ALRIGHT, THAT SEEMS TO HAVE DONE IT.

I WONDER HOW BILLY'S DO ...

MS. TORRES, I NEED YOUR HELP!
I CAN'T GET THE BLEEDING TO STOP! MY HANDS ARE GETTING TIRED!

WHAT CAN I DO?

TRY CHANGING YOUR BODY POSITION TO GET BETTER PRESSU...

WHAT IN THE...!?
THE CAVE'S SHAKING AGAIN!

WHAT SINISTER FORCES ARE AT WORK HERE?

WILL HELP ARRIVE IN TIME?

WE REQUIRE MORE BLOOD

WHO WILL LIVE?

WHO WILL DIE?

FIND OUT NEXT TIME IN CAVERN OF CARNAGE #2
YOU KEPT EVERYONE ALIVE. GOOD JOB!

RENA

YOU RECOGNIZED THAT THE WOUND WAS WORSE THAN A SCRATCH FROM LORETTA THE CAT AND A Tourniquet WAS NEEDED.

DIRECT PRESSURE DIDN'T CONTROL THE BLEEDING.

HARRY

YOU RECOGNIZED THE SIGNS THAT BILLY DIDN'T GET THE Tourniquet TIGHT ENOUGH.

YOU FIXED THE PROBLEM BY PULLING THE STRAP TIGHTER AND RE-TIGHTENING THE WINDLASS.

TONY

YOU NOTICED THAT BILLY APPLIED A Tourniquet OVER TONY'S KNEE, WHICH DIDN'T STOP BLEEDING.

YOU FIXED THE PROBLEM BY APPLYING A 2ND Tourniquet JUST ABOVE THE KNEE.

YOU ALSO NOTICED THE Tourniquet LOOSENED AFTER MOVING HIM OUT OF THE PLANT. YOU HAD TO RE-TIGHTEN IT.

TESS

BILLY APPLIED A Tourniquet TO TESS'S LEG, BUT DIDN'T SECURE THE WINDLASS.

YOU TWISTED AND SECURED THE WINDLASS TO GET IT TIGHT.

YOU CHECKED THE Tourniquet AFTER TESS WAS DRAGGED AWAY, AND NOTICED NEW BLEEDING.

YOU DIDN'T HAVE ANOTHER Tourniquet, SO YOU APPLIED DIRECT PRESSURE.

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